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CHICAGO URBAN TRANSPORTATION DISTRICT
Chicago Central Area Transit Project

Environmental Impact Analysis

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ENVIRONMENTAL IMPACT ANALYSIS

CHICAGO CENTRAL AREA TRANSIT PROJECT

SUBMITTED TO

CHICAGO URBAN TRANSPORTATION DISTRICT

AMERICAN BECHTEL, INC.
SUBCONTRACTORS:
W.V. ROUSE ASSOCIATES, LTD.
INSTITUTE OF TRANSPORTATION &
REGIONAL PLANNING
DECEMBER 14, 1973

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I. INTRODUCTION

A. Historical Perspective

Mechanized rapid transit operations began in Chicago in 1892 with the completion of the steam-powered South Side Elevated Railroad. A second steam-powered line, the Lake Street Elevated, opened in 1894 serving the Oak Park area. The Metropolitan West Side Elevated began operation in 1895, offering the first electrified elevated train service in the U. S. The Lake Street Elevated was electrified in 1896 and the South Side Elevated was electrified in 1898.

Each line operated into separate stub terminals until 1897 when the Union Loop was built, jointly serving the three elevated lines. Operation of these three lines was consolidated with bus operations and placed under the jurisdiction of the newly formed Chicago Transit Authority (CTA) in the year 1947.

Since the time the three elevated lines were connected by the Loop construction, several plans have been put forward for the extension of transit in the Chicago area. Proposals on record include the extensive Burnham Plan of 1909, and plans presented in 1916, 1923, 1927, 1930, 1937, 1939, 1958 and 1962. These schemes proposed various combinations of streetcar subways, rapid transit subways, and pedestrian ways of

varying extent and alignment. However, actual transit construction in this time period was limited to the State Street Subway (1943) and the Congress-Dearborn-Milwaukee (1951). The Congress Line was extended along the medians of the Eisenhower Expressway in 1958 and the Kennedy Expressway in 1970, and the North-South Line was extended along the median of the Dan Ryan Expressway in 1969.

Although changes in growth and development patterns in the Chicago area have rendered these older plans ineffective as viable transportation systems, some elements of the plans have proven consistent with contemporary transportation planning goals. These elements are the inclusion of a CBD distributor subway in the 1916 plan, proposals to remove the elevated structure, first seen in the 1927 plan, and underground pedestrian passageways, first exhibited in the 1930 plan and expanded in the 1962 plan.

B. Project Background

The Chicago Central Area Transit Project (CCATP) is based on a Transit Planning Study authorized in 1965 for the purpose of producing a definitive plan for improving the distribution of transit and commuter passengers within the boundaries of Chicago's Central Area, removing the existing elevated structure, extending areas served by public transit facilities and making the movement of people in Chicago's Central Area easier, faster and safer.

The preliminary engineering study prepared by DeLeuw, Cather & Co. in 1968 recommended a system of modern subways in the Central Area as a direct replacement for the outmoded elevated structure. In addition, the study report recommended the construction of a Distributor Subway designed to distribute commuter railroad passengers within the Central Area and to tie the areas at the near north side up to the John Hancock Center with the highly transit-accessible Loop. An update of the study in 1971 by the original authors confirmed the original findings.

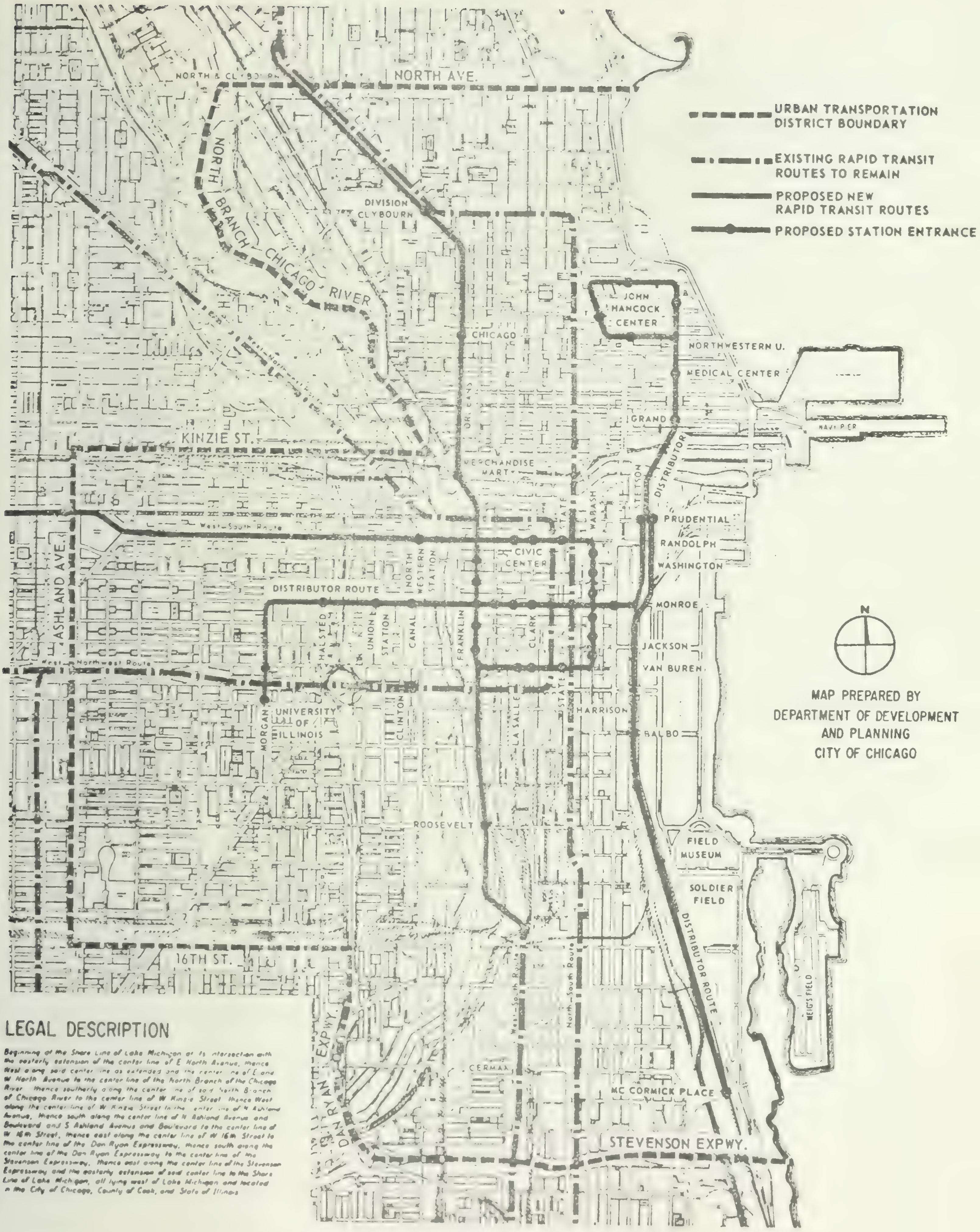
For the purpose of constructing the CCATP Project, the Chicago Urban Transportation District (CUTD), a State of Illinois Municipal Corporation, was created pursuant to a

resolution adopted by the Chicago City Council on April 29, 1970. The geographic boundaries of the District are shown on Figure I. 1.

The legal description of such boundaries is as follows:

> Beginning at the Shore Line of Lake Michigan at its intersection with the easterly extension of the center line of E. North Avenue, thence West along said center line as extended and the center line of E. and W. North Avenue to the center line of the North Branch of the Chicago River; thence southerly along the center line of said North Branch of the Chicago River to the center line of W. Kinzie Street, thence West along the center line of W. Kinzie Street, to the center line of N. Ashland Avenue; thence south along the center line of N. Ashland Avenue and Boulevard and S. Ashland Avenue and Boulevard to the center line of W. 16th Street, thence east along the center line of W. 16th Street to the center line of the Dan Ryan Expressway; thence south along the center line of the Dan Ryan Expressway to the center line of the Stevenson Expressway; thence east along the center line of the Stevenson Expressway and the easterly extension of said center line to the Shore Line of Lake Michigan, all lying west of Lake Michigan and located in the City of Chicago, County of Cook, and State of Illinois.

FIGURE I.1



LEGAL DESCRIPTION

Beginning at the Shore Line of Lake Michigan at its intersection with the easterly extension of the center line of E North Avenue, thence West along said center line as extended and the center line of E and W North Avenue to the center line of the North Branch of the Chicago River thence southerly along the center line of said North Branch of Chicago River to the center line of W Kinzie Street thence West along the center line of W Kinzie Street to the center line of N Ashland Avenue, thence south along the center line of N Ashland Avenue and Boulevard and S Ashland Avenue and Boulevard to the center line of W 16th Street, thence east along the center line of W 16th Street to the center line of the Dan Ryan Expressway, thence south along the center line of the Dan Ryan Expressway to the center line of the Stevenson Expressway, thence east along the center line of the Stevenson Expressway and the easterly extension of said center line to the Shore Line of Lake Michigan, all lying west of Lake Michigan and located in the City of Chicago, County of Cook, and State of Illinois

CHICAGO URBAN TRANSPORTATION DISTRICT

In 1971 CUTD applied for a Mass Transportation Facilities Grant under the Mass Transit Act of 1971; the application is still pending.

The District was awarded a Federal Urban Mass Transit Administration, Mass Transit Studies Grant in 1972 for the purpose of developing Phase I of the CCATP Project, including the preparation of definitive systems planning and criteria for the Distributor portion of the project as well as the final design of a portion of the Distributor.

The District has retained the Chicago Department of Public Works as its Project Management element for the project and retained supervising consulting architects and engineers to carry out Phase I of the project.

The Project Management Team and the supervising consultants are presently in the sixth month of the eighteen-month effort involved in Phase I.

In 1973, the District was awarded another UMTA technical studies Grant to:

1) Review the Loop portion of the CCATP Project and evaluate other alternative schemes.
2) Prepare an Environmental Impact Analysis for the total CCATP Project.

3) Prepare a study design for a "before and after study" for the CCATP project and compile and catalog data for the "before" portion of that study.

American Bechtel, Inc. has been retained by the District as a special consultant to perform this section of the overall CCATP project. This report is a draft of the Environmental Impact Analysis.

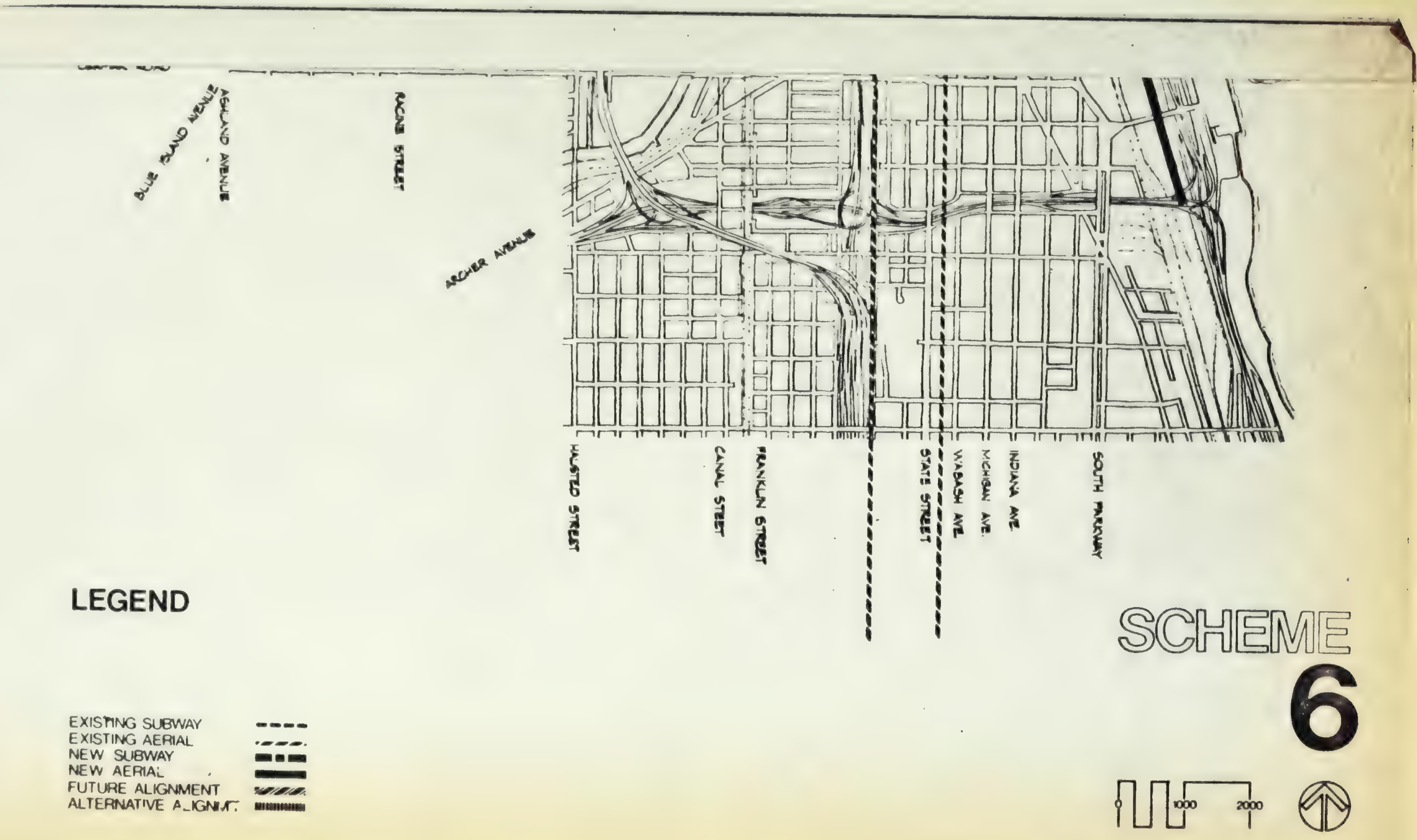
C. Description of Proposed Project

The proposed project consists of two main components: a loop subway integrated with the present CTA rapid transit system and an independent distributor system as shown on Fig. I. 2.

The proposed Loop system would operate in basically the same manner as the existing system. The Loop Subway would be built in Randolph Street, Wabash Avenue, Van Buren Street and Franklin Street in the Central Business District. The only major changes would be in the connections to the south and north from this Loop. Whereas the existing elevated structure south leg occupies the alley between Wabash and State Street, the new south leg would be built in the median space of the proposed Franklin Street Connector. The existing north leg from the Loop follows an alignment along or adjacent to Franklin Street. The new north line would follow closely along the rights-of-way of Kingsbury, Larrabee and Clybourn Streets. Both existing subways would continue to operate in their present fashion.

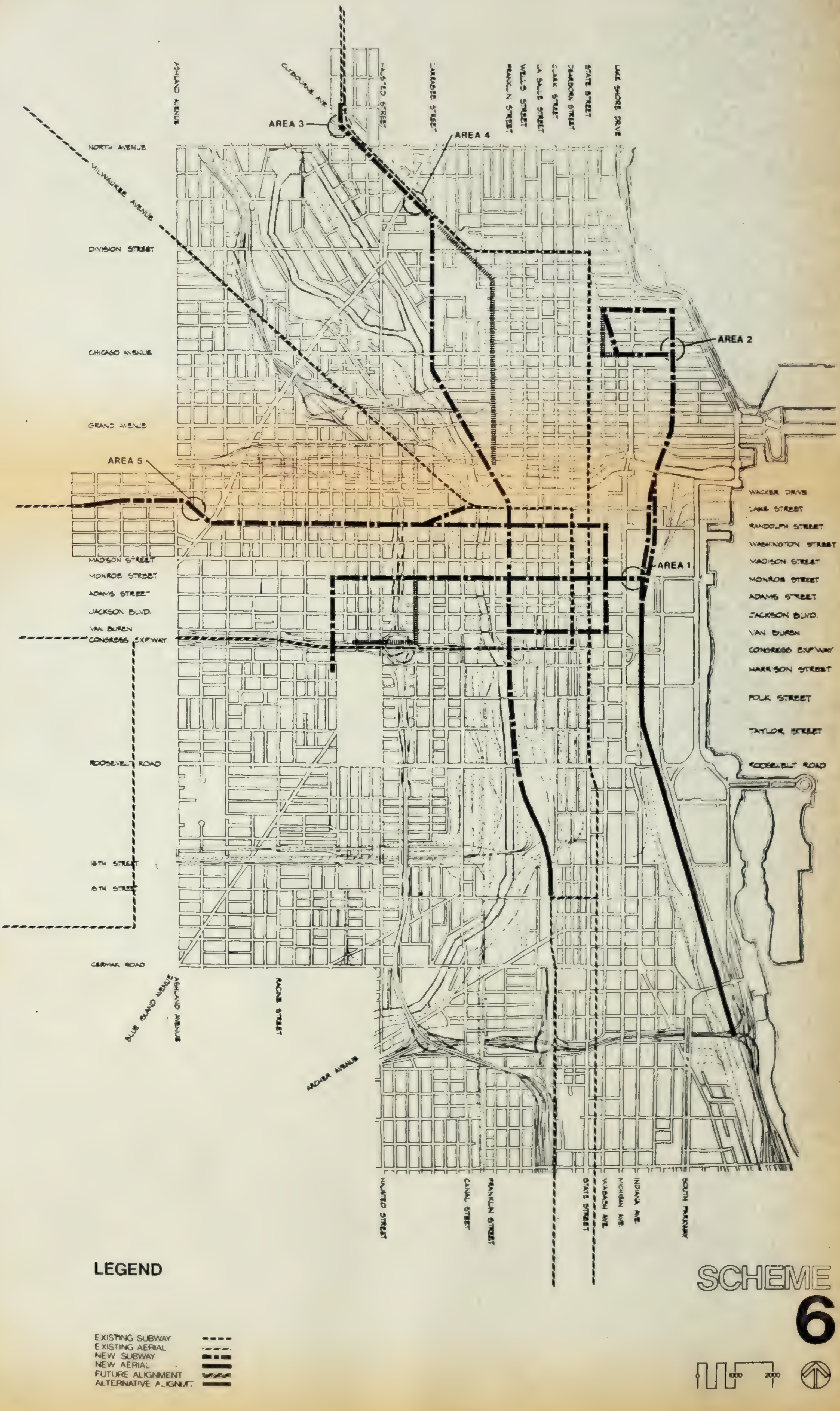
The CCATP Distributor would extend from the Illinois Circle Campus in the West and would be built as a subway along Monroe Street through the CBD. At a point east of Michigan Avenue, the Distributor would split; one line going north and circling the John Hancock Center and the other line going south to McCormick Place. Numerous transfer points would be provided to access this entirely new line to the new Loop and existing subways.

SCHEME 6



LEGEND

EXISTING SUBWAY
EXISTING AERIAL
NEW SUBWAY
NEW AERIAL
FUTURE ALIGNMENT
ALTERNATIVE ALIGNMT.


ASHLAND AVENUE
CLYBOURNE AVE
HALSTED STREET
LARRABEE STREET
FRANKLIN STREET
WELLS STREET
LA SALLE STREET
CLARK STREET
DEARBORN STREET
STATE STREET
LAKE SHORE DRIVE
AREA 3
AREA 4
AREA 2
AREA 5
AREA 1
NORTH AVENUE
MILWAUKEE AVENUE
DIVISION STREET
CHICAGO AVENUE
GRAND AVENUE
MADISON STREET
MONROE STREET
ADAMS STREET
JACKSON BLVD.
VAN BUREN
CONGRESS EXP'WAY
ROOSEVELT ROAD
16TH STREET
18TH STREET
CERMAK ROAD
BLUE ISLAND AVENUE
ASHLAND AVENUE
RACINE STREET
ARCHER AVENUE
WACKER DRIVE
LAKE STREET
RANDOLPH STREET
WASHINGTON STREET
MADISON STREET
MONROE STREET
ADAMS STREET
JACKSON BLVD.
VAN BUREN
CONGRESS EXP'WAY
HARRISON STREET
POLK STREET
TAYLOR STREET
ROOSEVELT ROAD
HALSTED STREET
CANAL STREET
FRANKLIN STREET
STATE STREET
WABASH AVE.
MICHIGAN AVE.
INDIANA AVE.
SOUTH PARKWAY
LEGEND
EXISTING SUBWAY
EXISTING AERIAL
NEW SUBWAY
NEW AERIAL
FUTURE ALIGNMENT
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SCHEME
6

II. SUMMARY OF ENVIRONMENTAL FINDINGS

A. Physical Environmental Impacts

The environmental effects of the proposed system are:

- a substantial reduction in community exposure to noise and vibration from transit systems as well as a reduction in vehicular traffic noise arising from the diversion of passengers to the proposed system.
- a significant reduction in energy and petroleum resource consumption by the community.
- a minor beneficial effect on long term air quality. The system will also provide transit capacity which would facilitate restrictions on central area vehicle traffic if this becomes necessary to maintain air quality.
- disposal of subway excavation spoil in Lake Michigan, in accordance with the Chicago Lakefront Plan, will destroy some benthic habitat and organisms. Impermeable dikes may be required to prevent damage to water quality and turbidity curtains may be necessary to control turbidity. The filled land created by spoil disposal will provide badly needed open space close to the densely populated central area of Chicago as well as additional habitat for aquatic life, waterfowl and shorebirds.

- There will be a significant reduction in transportation related fatalities, personal injury accidents and property damage impacts.
- The visual impact of the existing elevated transit lines will be removed.

Any potential problems with ground water and underground utilities and foundation support can be easily met during construction as evidenced by the successful construction of the existing subways. Undesirable adverse environmental effects are limited to short term localized effects (noise, dust, hazardous conditions, visual intrusion) which may occur during construction and can be mitigated by efforts to insure that construction proceeds rapidly and safely.

B. SOCIAL IMPACTS

The social impacts of the proposed system are:

- improvement in the attractiveness, convenience and security of station facilities, leading to improved service to transit dependent groups (especially the handicapped). These improvements will hopefully increase patronage on the system and decrease reliance on automobile travel.

- removal of many of the blighting, noisy, and crime stimulating sections of the existing elevated structure.

- improved access to many low-income areas to employment and human services in the Central Area and the suburbs.

- improved access from the entire region to the Loop area. This will strengthen the position of the Loop as the focus of the region's commercial, entertainment, social and cultural functions.

- improved access from the entire region to the cultural, service and medical facilities in the near north area. The project will also improve the transit access of residents in this area to other parts of the region.

- the permanent relocation of an estimated 494 commercial, industrial, and residential tenants resulting from the project's construction.

- Short term impairment of circulation and access in neighborhoods through which transit lines are to be constructed.

- possible decrease in unemployment during construction in low-income areas if local residents are employed for project construction.

- possible future relocation in currently low-income areas resulting from increasing land values and rents promulgated by improved transit access.

C. ECONOMIC IMPACT

The economic effects of the proposed system are:

- Implementation of the proposed system will become key to the revitalization of the central area. Major financial committments made by private sector following the announcement of the 1968 system provides major substantiation for our optimistic predictions. During the decade of 1960's centre city lost nearly 200,000 square feet office space per annum to suburban office centers. Not only this outflow is likely to stop but also to reverse itself. This along with other categories of office space demand can reach as high as 1.5 Million square feet per year.

- Reconstruction of McCormick Place has attracted high number of conventions to this city during 1972 creating shortage of hotel space. This fact along with the implementation of proposed distributor will provide great impetus to new hotel room construction. Currently nearly 5,000 additional hotel rooms or 25% of the existing capacity are under planning or construction based upon above discussed points. By 1990, nearly 10,000 hotel rooms may be added if proposed system is implemented.

- Added employment and hotel room provides great impetus to retail sales. New retail space amounting to about one million square feet is likely to be added. In addition sales per square feet in existing and near space are likely to go up as much as 50%.

- North Michigan corridor area has already established itself as high class residential unit market. The proposed distributor will definitely strengthen this market. In addition Clinton Street area located west of the loop area and south, southwest section from Van Buren are likely to get added impetus for apartment development.

- Review of the short term impact particularly during the construction phases suggests temporary moderate decline in the retail sales for those stores which are located along the route alignment. However, it is anticipated that a regional scale or the central area scale impact of such drop in retail sale will be minimum.

From the transportation and traffic viewpoint, the proposed project will have the following beneficial implications:

-increase passenger volumes on all transit lines entering the central area.

-improve intra-system transfer.

-improve system safety by eliminating some of the existing hazardous grade crossings.

-increase average speeds of the system through the Loop thus reducing average travel time.

-increase system expansion capabilities to meet future potential passenger demands.

-reduce operating costs per passenger mile (due to economy of scale in transporting larger numbers of people with the same equipment and manpower presently available).

-eliminate duplicate bus service to the downtown area and modify outlying bus lines to feed transit stations outside the CBD.

-eliminate at grade shuttle buses and modify other bus routes by terminating them at interchange stations with the Distributor.

-reduce traffic volume between near north area and the Loop and between both of these areas and McCormick Place.

-divert some auto commuters to railroad and transit due to better accessibility of the near north side and McCormick Place.

-reduce major travel times between the three major destination areas.

-improve accessibility of the near north side area with its numerous jobs and service opportunities for Chicago residents.

-improve security conditions through providing well-lighted modern stations and access points to the system.

-improve traffic flow through impacted downtown streets.

-reduce pedestrian traffic crossings.

III. PROJECT IDENTIFICATION AND DESCRIPTION

A. Sponsoring Agency

Chicago Urban Transportation District (CUTD) is a State of Illinois Municipal Corporation formed in 1970 as the agency responsible for planning, designing and building the Chicago Central Area Transit Project (CCATP).

A Board of Senior Consultants of the CUTD has been formed to provide the Board of Trustees of CUTD with expert advice and assistance in professional areas pertinent to the Trustee's deliberations concerning the CCATP.

The Senior Consultants will also provide professional assessment and evaluation of the efforts of the CCATP Project Team and supporting consultants as advisors to the CUTD Trustees, the Senior Consultants are responsible for objective, independent and professionally acceptable recommendations based on their knowledge and experience.

The Board includes eminent professional consultants from both the academic community and operating transit authorities. Expertise on the Board represents the fields of architecture, urban planning, transit operations, finance , public participation and social science, soil mechanics and structures.

Ex-officio members of the Board of Senior Consultants have been selected on the basis of their official positions.

Positions held by the ex-officio members are Regional Representative, Region V, US DOT, UMTA; Director , State of Illinois DOT, Office of Mass Transportation; Chairman of CTA; Commissioner, Department of Development and Planning, City of Chicago and Acting Commissioner and City Architect, Department of Public Works, City of Chicago.

Chicago Transit Authority (CTA) is responsible for maintaining adequate transit service during the construction of the project and for integrating various completed segments into their system-wide operation in accordance with the staging plan discussed in the Interim Report prepared by American Bechtel, Inc.

B. Project Facilities, Location and Area of Service

This description is taken verbatim from the 1968 Transit Planning Study, Vol. I, modified only to reflect minor changes in alignment for the northern extension of the Franklin Street line north of the Chicago River.

a) LOOP SUBWAY ALIGNMENT AND PROFILE

The existing elevated structure in the central business district will be replaced by a subway under Franklin, Van Buren, Wabash and Randolph. The proposed Loop Subway will be linked to the rapid transit facility in the median of the Dan Ryan Expressway by a transit line along the proposed Franklin Street Extension expressway. The Lake Street elevated structure from Ashland to the CBD will be replaced by a subway in Randolph Street. The Evanston-Ravenswood elevated structure from a point north of North Avenue to the CBD will be replaced by a subway from the northwest corner of the Loop Subway north on Franklin, northwest on Kingsbury Street and north on Larrabee Street, assuming the same right-of-way as the Ravenswood line on Clybourn Avenue.

The connection along the proposed Franklin Street Extension from the southwest corner of the Loop Subway to the Dan Ryan line will consist of subway, at grade, and elevated structure. An elevated structure will extend from the existing "L" at Archer Avenue, thence in the median of the elevated Franklin Street Extension roadway, to a point about 700 feet south of Roosevelt Road. The alignment and profile will follow that of the proposed roadway. The columns of the interim elevated structure between Archer Avenue and 18th Street will be modified to accommodate the profile of the structure. The transit line in the median will follow the Franklin Street Extension at grade to a portal about 800 feet south of Polk Street where the transit facility will enter a subway. Provision will be made for a storage yard south of Roosevelt Road. From the portal south of Polk Street to the Eisenhower Expressway the subway will be under the Franklin Street Extension roadway. The roadway is planned to be both at grade and underground in this section; therefore, it will be necessary to construct the subway from Polk Street to Harrison Street coincident with or prior to construction of the Franklin Street Expressway Extension.

The subway tubes in Franklin Street will have split profiles to accommodate the turning movements at the junction of Franklin and Van Buren. The north and southbound tubes from the portal

to Harrison Street will be on 4.3 percent and 1.0 percent grades, respectively. The distance from top of rail to ground surface at Harrison Street of the northbound and southbound tubes will be approximately 40 feet and 85 feet, respectively. The existing Congress-Dearborn subway under the Eisenhower Expressway will control the profile of the tubes in Franklin Street south of Van Buren, with the southbound tube passing over, and the northbound tube under, the existing subway. The proposed Franklin Street subway from Van Buren to Washington will be a two-level cut and cover section with the top of rail of the upper level 45 to 50 feet below ground line. At Monroe Street the Distributor Subway will cross over the Franklin Street subway. North of Washington the two-level subway section in Franklin Street will split into two separate tubes with the upper southbound tube passing over and the lower northbound tube passing under the proposed subway in Randolph Street and the existing subway in Lake Street. North of Lake Street the alignment of the Evanston-Ravenswood subway in Franklin Street will turn northwesterly to cross under the Chicago River. Just north of the river and west of the Merchandise Mart, the northbound and southbound tracks will have the same profile. The alignment will follow the centerline of Kingsbury Street from the Merchandise Mart to Larrabee Street. The subway will turn northward on Larrabee Street until Evergreen Avenue where the new subway will straddle the existing Howard subway on Clybourn Avenue; the northbound tracks alongside the northbound tracks of the Howard line and the southbound track of the Englewood/Jackson Park service. Such alignment will continue on Clybourn Avenue to Willow Street where the subway will enter an incline to connect with the existing "L".

The proposed Lake Street subway will connect with the existing elevated structure at Damen Avenue and continue on elevated structure to Wood Street where the rapid transit will enter a subway and continue in an easterly direction along a line between Lake Street and an alley immediately north to Ashland Avenue where the alignment will turn southeasterly to Randolph. It will then follow the centerline of Randolph to Franklin Street. Between Ashland and Desplaines the distance from top of rail to ground surface will vary from 35 to 55 feet. The profile control points in this section are the Kennedy Expressway and an eight foot water tunnel under Halsted Street.

The stubs of the existing Dearborn-Milwaukee subway in Lake Street will be connected to the proposed subway in Randolph between Desplaines and Clinton Streets. Rebuilding of the Randolph Street river bridge will have to be coordinated with the subway construction.

The Loop Subway will follow the centerlines of Randolph Street, Wabash Avenue and Van Buren Street. The distance from the top of rail to the ground surface for the Loop Subway under those streets will vary from 60 to 65 feet. The profile control points are the existing State and Dearborn subways. The junctions at Franklin and Randolph, and at Franklin and Van Buren, were designed for maximum flexibility in transit operation. At the Franklin-Randolph junction through service on the Lake Street line in the Randolph Street subway will pass over the northbound and under the southbound tubes in Franklin Street so that trains may operate simultaneously on a number of routes without interfering with each other.

The Franklin-Randolph junction will have two at-grade crossings; however, both will involve turning movements (WB-SB and NB-WB) which are expected to be made only in off-peak periods by regular service or for maintenance and emergency purposes. The Franklin-Van Buren junction will be completely grade separated so that trains may converge or diverge from either loop without interference with movements on the other loop. This design will increase the capacity of the loop in terms of train movements in peak periods and will reduce the average running time in the loop.

Stations

Subway stations will be located and designed for maximum convenience to patrons. The stations in the CBD will permit modification for adaption to future public and private developments. Stations will afford easy circulation. Platform and mezzanine areas will have minimum obstruction to facilitate surveillance and to assure maximum security. Location of fare collection facilities should be verified during final design stages.

The following stations are proposed:

Lake-Paulina to Ashland

This station will have a center platform 23 feet wide and 520 feet long. It will have enclosed street level entrances on both sides of

Ashland Avenue. There will also be a bus turnaround in the area. The station section will have a clear span with a tee-beam type roof.

Randolph-Clinton to Canal

With 12-foot side platforms 520 feet long, station access will be through the Chicago and North Western Railway station suburban concourse and the proposed passageway in Canal Street. Construction of this station will require underpinning of the existing railway viaduct. The station will have a twin box cut and cover section with the platform areas unobstructed.

Franklin-Roosevelt

This at-grade station, with a 22-foot center platform 520 feet long, will lie just north of Roosevelt Road in the median of the Franklin Street Extension. Access to the station will be via the Roosevelt Road overpass at the south end of the station.

Larrabee - Chicago

With a 25-foot center platform 520 feet long, a mezzanine will be centered on Chicago Avenue. Access to the station will be afforded at the four corners of the Larrabee-Chicago intersection. Cut and cover construction with a clear span arched roof is proposed.

Merchandise Mart - Wolf Point

The final design of this section will have to be coordinated with the future Wolf Point Development. A station is proposed west of the Merchandise Mart between the Chicago River and Kinzie Street with 25-foot center platforms 520 feet long. Mezzanines, concourse, parking and exhibit areas will be planned as part of the development.

Randolph-Wells to State

This station will have a 28-foot center platform extending from

LaSalle to State streets. The mezzanine, which will be an integral part of the subway structure, will consist of 15-foot walkways on each side extending the full platform length, with crosswalks at approximately 60-foot intervals. A pedestrian passageway is proposed to extend from the mezzanine at LaSalle to Wells with street level access at the four corners of the Wells-Randolph intersection. Street level entrances to the continuous mezzanine will be installed at La Salle, Clark and Dearborn. At State Street, passageways will extend from the mezzanine of the proposed Randolph Street subway to the existing mid-block mezzanines of the State Street Subway. The proposed subway will be connected to the existing Dearborn Street subway via a passageway in Dearborn Street between the existing and proposed mezzanines. Stairs and escalators from the mezzanine to the platform will be installed at each cross street between La Salle and State Streets. Location of fare collection facilities are suggested but must be verified during the final design phase.

Wabash-Van Buren to Randolph

This Station will have a 28-foot continuous platform from Jackson to Washington. The station section will be similar to that at Randolph with a continuous high-level mezzanine consisting of 15-foot walkways on each side connected by crosswalks at approximately 60-foot intervals. The mezzanine will be at approximately the same elevation as the Distributor Subway in Monroe Street. The mezzanine on each side of the Distributor Subway in Monroe will be connected by a pedestrian passageway under the Distributor Subway and above the Wabash Avenue subway platform. The subway section is proposed to have knockout panels at mezzanine level, thereby permitting interconnection between the mezzanine area and both existing and future public and private developments along Wabash Avenue. Street level entrances via stairs and escalators will be provided in the middle of each block between Van Buren and Randolph with the mezzanine connecting to the platform area at comparable locations in each block. Pedestrian passageways connecting the Loop Subway mezzanines and the Illinois Central Railroad commuter stations are proposed along Randolph and Van Buren Streets.

Van Buren - Wells to State

Two alternative schemes are proposed for construction of the Van Buren Street subway. Since elevated service on Van Buren Street has to continue during construction, it may be necessary to build the subway by deep tunnel methods. Van Buren Street is

66 feet wide and it would be difficult to underpin the existing "L" and construct the subway by cut and cover method. If an operating plan can be devised, however, which will permit maintenance of elevated service on Van Buren Street, cut and cover methods of construction are preferable. The cut and cover section would have a 22-foot unobstructed platform. For the cut and cover section the mezzanine would be an integral part of the subway whereas the mezzanine for the tunnel section would be constructed separately from the subway section at appropriate intervals. For either scheme, street level access would be provided at Sherman, La Salle, Clark, Dearborn, and State streets with connections between mezzanine and platform levels at approximately the same locations. Connections to the existing Dearborn and State subways will be provided similar to those proposed to be built at the Randolph Street station.

Franklin-Jackson to Washington

The double-level structure in Franklin Street will have a continuous platform on each level from Jackson Boulevard to Washington Street. Mezzanines will be built at Jackson, Adams, Monroe, mid-block between Madison and Washington, and mid-block between Washington and Randolph. The mezzanines will rest on the upper level of the subway section on the east side of the street with street level entrances via stairs and escalators at each mezzanine along the east curb line. Access to the subway mezzanine from the west side of the street will be afforded at Adams Street and mid-block between Madison and Washington via a passageway under the Sanitary District sewer. Direct track and passenger connection between the Loop Subway in Franklin Street and the Distributor Subway will be built at Monroe Street.

b) DISTRIBUTOR SUBWAY

The western terminal of the Distributor Subway will serve the University of Illinois-Chicago Circle Campus. It will be located southeast of the intersection of Harrison and Morgan Streets. From there, the line will run north to Adams Street paralleling Morgan Street. At Adams the alignment will turn east, meeting Monroe Street at Peoria Street. It will then follow the centerline of Monroe to a station just east of Michigan Avenue.

Connections from Monroe Street to Franklin Street will permit service around the loop via the Distributor during certain construction stages. This connection will also have permanent

use for returning trains on the Distributor to the shops for maintenance, to storage areas and for interworking in-service trains, should this be desirable.

East of Michigan Avenue the alignment will extend north to Walton Place and south to the vicinity of McCormick Place. The latter branch will consist of two tracks leaving the subway at Adams Street and occupying Illinois Central Railroad right of way at grade to 23rd Street.

The double-track line to the north will follow an alignment just east of the Prudential Building under the existing Stetson Avenue viaduct to Chicago Avenue. Operated counterclockwise, a single track loop will extend under De Witt Place, Walton Place, Rush Street and Chicago Avenue to the point of beginning at Fairbanks Court.

A second double-track section will parallel the north-south legs of the Distributor extending from Adams Street to a point north of the Prudential Building permitting through north-south operation from McCormick Place to the Prudential station and connecting to the north leg of the Distributor.

Profile

At its west end along Morgan Street, top of rail of the Distributor will be approximately 30 feet below street grade. Under the Eisenhower Expressway, the roadways and existing CTA track structure in the median will rest directly on the Distributor structure.

On Monroe, between Peoria and the Kennedy Expressway, top of rail will be 30 to 40 feet below street level. East of the Expressway the Distributor will drop to pass beneath a 15-foot Sanitary District sewer in Jefferson Street under the South Branch of the Chicago River. The top of rail at the river crossing will be approximately 70 feet below street grade.

East of the river the Distributor will rise on a 4.4 percent grade, passing over the proposed two-level subway in Franklin. Between Franklin and Michigan Avenue the distance from top of rail to street level will vary from 25 to 34 feet. Control points for the profile on this leg of the Distributor are the proposed subway in Franklin and the existing subways in Dearborn and State Streets.

The south leg of the Distributor will rise on a 3.5 percent grade from Monroe to a portal at Adams Street and then at Illinois Central track grade to McCormick Place. Top of rail on the north leg of the Distributor between Monroe and the Prudential Building will be about 30 feet below the ground.

North of the Prudential Building the profile will drop on a 5.0 percent grade to cross under the Chicago River about 60 feet below street level. North of the river the Distributor will rise on a 5.0 percent grade to pass over the existing tunnel at North Water Street. Along Fairbanks Court the top of rail will be approximately 30 feet below ground. The Distributor loop around De Witt Place, Walton Place, Rush Street, and Chicago Avenue will be approximately 31 feet below ground. The profile of the loop will be influenced by existing utilities in the area.

Stations

The Distributor system will have numerous stations to afford maximum convenience to patrons destined for points throughout the Central Area. Minimum platform length will be 520 feet. Where possible island platforms will be used. The following stations are proposed:

Morgan-Harrison to Van Buren

This station will have a center platform 25 feet wide and 850 feet long. The station will have an arched roof except within the Eisenhower Expressway right of way where clearance limitations will dictate a box structure with center columns. Access will be provided at Van Buren and at the University of Illinois Chicago Circle Campus south of Harrison. Connections will also be made with an extension of the existing CTA platform in the median of the Expressway. This section will be constructed by cut and cover method.

Monroe-Halsted

With a 25-foot center platform 520 feet long, a mezzanine will be centered beneath Halsted. The roof will be arched. Access to the station will be afforded at the northwest and southeast corners of the Monroe-Halsted intersection. Cut and cover construction is proposed.

Monroe-Desplaines to Canal

This station will have a 25-foot center platform 700 feet long with a continuous mezzanine walkway from Desplaines to Canal. Connections to street level will be built at Desplaines, Jefferson, Clinton and Canal. A 34-foot passage with a moving walkway will be constructed under Canal Street from Randolph to the Union Station. It will connect with the mezzanine of the Distributor station, affording access to the Distributor system for commuters using both the Chicago and North Western Station and the Union Station. Future buildings in the vicinity could also have direct pedestrian connections with stations on the Distributor.

Monroe-Franklin to Michigan

The Distributor Subway will have continuous 12-foot-wide side platforms from Franklin to Michigan Avenue. Since this will be a high-level subway in this area, the mezzanines will be placed in the cross streets at the same elevation as the platforms. Street level entrances to the subway will be built at each cross street between Franklin and Michigan Avenue. Pedestrian passageways will extend between the proposed mezzanines on State and Dearborn Streets and the existing mid-block mezzanines of the State and Dearborn subways.

McCormick Branch-Roosevelt

This at-grade station, with a 15-foot center platform 520 feet long will serve the Field Museum and Soldier Field.

McCormick Place

This station will have a 39-foot, at-grade center platform with the station centerline just south of 23rd Street. The below-grade station area will be served by a 32-foot pedestrian tunnel from McCormick Place. Provision will be made for pedestrian tunnels to proposed buildings of the Illinois Central Air Rights Development west of the station.

Prudential Building

This four-track station will have a 25-foot center platform serving the inner tracks and 12-foot side platforms serving the outer tracks. It will have a continuous concourse extending from Randolph to Lake Streets. The concourse will connect with pedestrian

passageways from the Illinois Central Railroad commuter station and from the Prudential Building. Plans contemplate future pedestrian passageways north and east of the concourse to serve the proposed Illinois Central Air Rights Development. The mezzanine will be centered below the concourse between Randolph and Lake Streets with six entrances and exits between the mezzanine and platform areas. Construction of this station, with a platform approximately 25 feet below grade, will require underpinning and modification of the existing Stetson Avenue viaduct.

Fairbanks Court - Illinois to Grand

With a 25-foot center platform 520 feet long and a mezzanine at each end, the station may have entrances and exits both at Illinois Street and at Grand Avenue.

Fairbanks Court-Erie to Huron

This station will have a 25-foot center platform 520 feet long with a mezzanine centered between Erie and Huron. An entrance and exit to street level will be built on the west side of Fairbanks Court since utilities block access from the east side of the street.

Near North Side Loop Stations

Four single-track stations on the near north side loop will have 12-foot platforms 520 feet long. Each station will have a single mezzanine at the same elevation as the platform with street level entrance and exit on one side of the street only. The De Witt Place station will have the mezzanine centered between Chestnut Street and Delaware Place with access on the west side of the street. The Walton Place station will have a mezzanine at Michigan Avenue with access on the south side of the street. The mezzanine for the Rush Street station will be centered between Pearson and Chestnut streets with access on the east side. The Chicago Avenue station will have a mezzanine at the west end of the platform at Michigan Avenue with access on the south side of the Chicago-Michigan intersection. Pedestrian passageway will be built in Chicago Avenue between the proposed mezzanines and the existing State Street subway.

C. EXISTING ENVIRONMENTAL SETTING

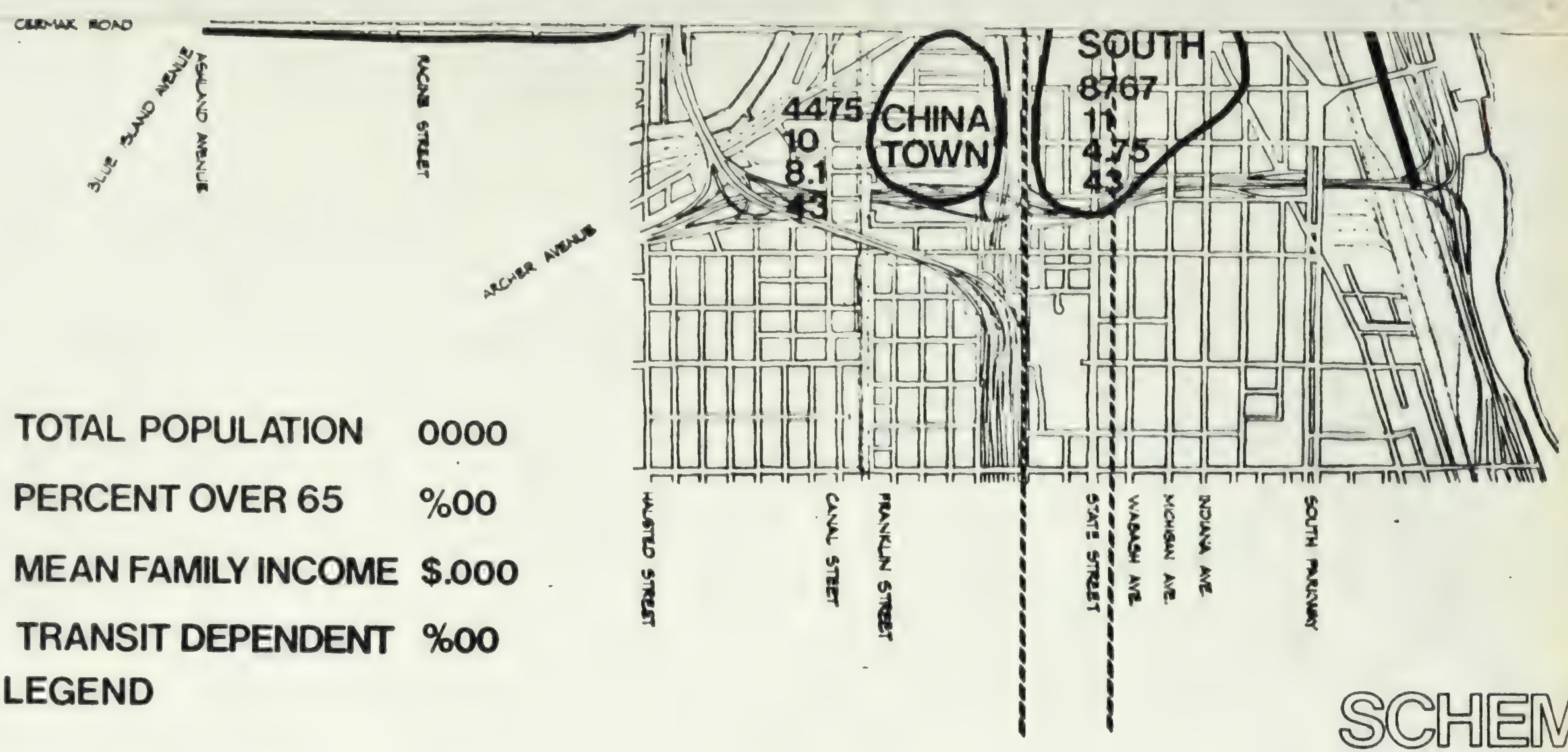
This section is a discussion of the existing environmental setting of the Chicago Urban Transportation District. Topics included in this discussion are land use and neighborhood characteristics, traffic and transportation, noise, and air quality.

1. Land Use and Neighborhood Characteristics

The CUTD study area is bounded by North Avenue on the north, Ashland Avenue on the west, the Stevenson Expressway on the south, and Lake Michigan on the east. Approximately 5,800 acres of land are within this area, with approximately 135,344 residents. Fifty-four percent of these residents are either Black, Spanish, or Oriental. In addition, 54% of the people reside in the northern sector of the study area, comprising the Cabrini-Green, North Clark, and North Michigan communities.

Ten communities have been identified in the study area, including the central core known as the Loop. A brief description of each of these communities follows and their location with respect to the CCATP project is shown on the following map. A list of all human service facilities (Learning institutions, Health Centers and Social Service agencies) together with maps identifying their locations within the CUTD area are given in Appendix 1 .

SCHEME 6



TOTAL POPULATION 0000

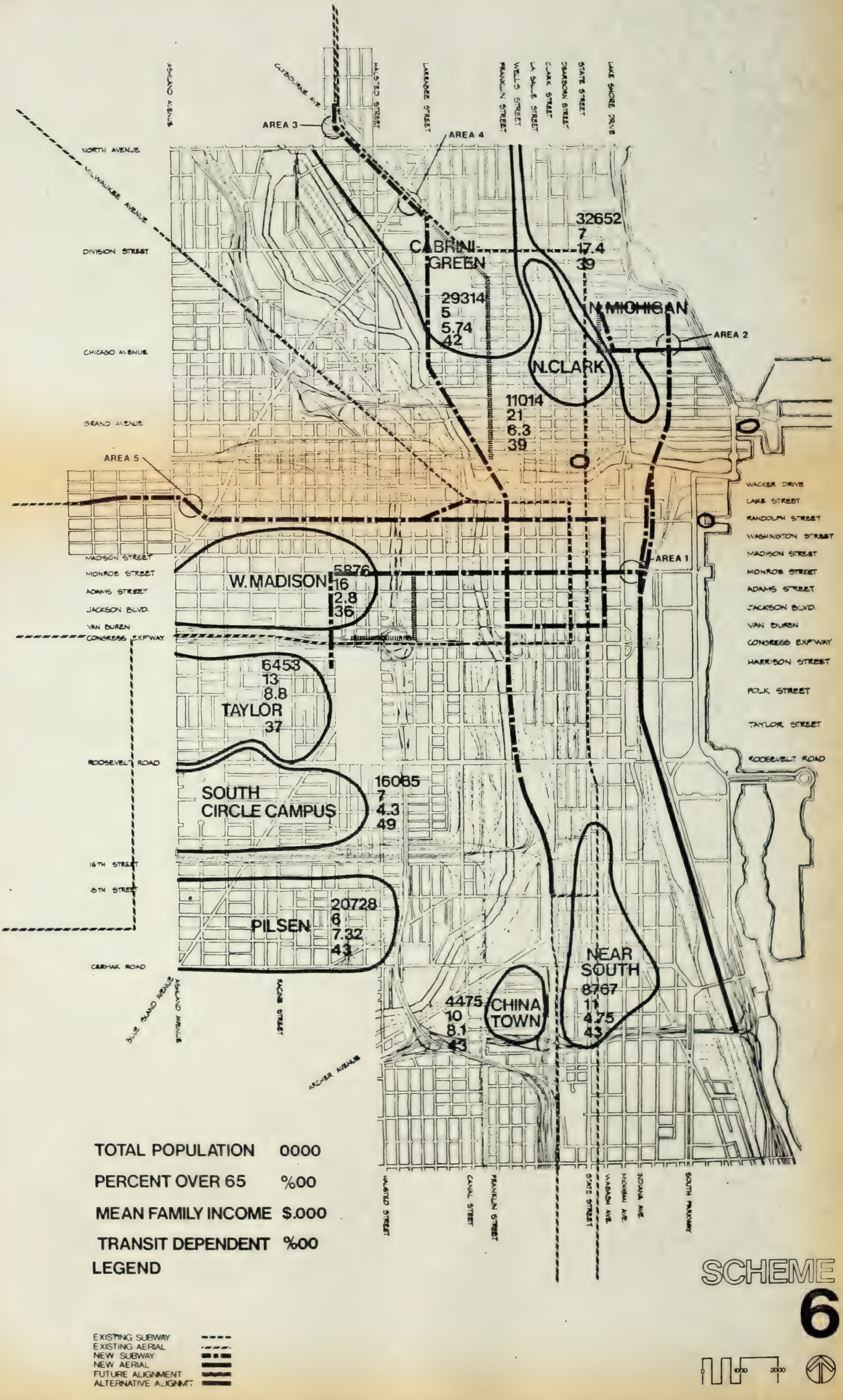
PERCENT OVER 65 %00

MEAN FAMILY INCOME $.000

TRANSIT DEPENDENT %00

LEGEND

EXISTING SUBWAY - - - -
EXISTING AERIAL
NEW SUBWAY
NEW AERIAL
FUTURE ALIGNMENT
ALTERNATIVE ALIGNMT


ASHLAND AVENUE
CLYBOURNE AVE
HALSTED STREET
LARRABEE STREET
FRANKLIN STREET
WELLS STREET
LA SALLE STREET
CLARK STREET
DEARBORN STREET
STATE STREET
LAKE SHORE DRIVE
AREA 3
AREA 4
AREA 2
AREA 5
AREA 1
NORTH AVENUE
MILWAUKEE AVENUE
DIVISION STREET
CHICAGO AVENUE
GRAND AVENUE
MADISON STREET
MONROE STREET
ADAMS STREET
JACKSON BLVD.
VAN BUREN
CONGRESS EXP'WAY
ROOSEVELT ROAD
16TH STREET
18TH STREET
CERMAK ROAD
BLUE ISLAND AVENUE
ASHLAND AVENUE
RACINE STREET
ARCHER AVENUE
CABRINI-GREEN
29314
5
5.74
42
32652
7
17.4
39
N.MICHIGAN
N.CLARK
11014
21
6.3
39
W.MADISON
5876
16
2.8
36
6453
13
8.8
TAYLOR
37
SOUTH CIRCLE CAMPUS
16065
7
4.3
49
PILSEN
20728
6
7.32
43
NEAR SOUTH
8767
11
4.75
43
CHINA TOWN
4475
10
8.1
43
WACKER DRIVE
LAKE STREET
RANDOLPH STREET
WASHINGTON STREET
MADISON STREET
MONROE STREET
ADAMS STREET
JACKSON BLVD.
VAN BUREN
CONGRESS EXP'WAY
HARRISON STREET
POLK STREET
TAYLOR STREET
ROOSEVELT ROAD
HALSTED STREET
CANAL STREET
FRANKLIN STREET
STATE STREET
WABASH AVE.
MICHIGAN AVE.
INDIANA AVE.
SOUTH PARKWAY
TOTAL POPULATION 0000
PERCENT OVER 65 %00
MEAN FAMILY INCOME $.000
TRANSIT DEPENDENT %00
LEGEND
EXISTING SUBWAY
EXISTING AERIAL
NEW SUBWAY
NEW AERIAL
FUTURE ALIGNMENT
ALTERNATIVE ALIGNMT
1000
2000

SCHEME 6

a. The Loop

The Loop is located in the east central section of the study area along Lake Michigan. The Loop is the dominant center for commercial, office, cultural, recreational, and social services in the region. Furthermore, it is an intermediate destination for those trips using more than one line or one mode of transportation. Its distinct advantage is that the aggregation of these services in one locale, and the radial transit system that has been developed, affords relatively easy access from all parts of the metropolitan area.

In addition, in recent years, development has been occurring in the north and west sections of the Loop. Besides these developments, attempts have been made to re-establish a perception and reality of safety and security among Chicago's residents so that the Loop will become a 24 hour activity center for all categories of the population.

b. North Michigan

The North Michigan area is bounded on the east by Lake Michigan, on the north by North Avenue, on the south by Grand Avenue, and on the west by Wells from North to Division Street, by Rush Street from Division to Chicago, and by Lake Shore from Chicago to Grand.

The North Michigan area, which borders Lake Michigan, is a very intensively developed area with an integrated range of services. Containing approximately 32,652 people, it is the largest community in the study area with 24% of the total study area population. With an average mean family income of $17,400, 64% of its total population is employed, 25% of whom work in the Loop.

In addition to its residential component, the North Michigan area contains a high concentration of many types of services found in any one identifiable area of the city. Thus, besides its residential function, it also functions as a commercial center, an office center, a tourist area, and an entertainment area. Moreover, Northwestern Medical complex is located within the area, affording a full scope of health services. Its location along Lake Michigan provides it with a view of and access to one of the finest parks/recreational areas in the city.

Its major problems are traffic congestion and parking insufficiency brought about by intense development, and its insufficient linkage to the Loop. One must bear in mind that, as a commercial, entertainment, health, and educational center, access to the area is as important as egress from it.

c. North Clark

North Clark is a triangular shaped area that is bounded by Rush Street on the east, Grand Street to Chicago Avenue on the south, and Wells to Division on the west. Meshed between the two largest communities, Cabrini-Green and North Michigan, North Clark contains 11,014 people, (8% of the study area population). It is largely white community and 21% of its residents are senior citizens. With a mean family income of $6,300, 64% of its population are members of the work force.

d. Cabrini-Green Area

The Cabrini-Green Area is bounded by North Avenue on the north, Franklin Street on the east, Chicago Avenue on the south, and the Chicago River on the west.

In sharp contrast to the other communities in the northern section of the study area, Cabrini-Green, the second largest community area, is characterized by its massive public housing project, its low income population, and its lack of available social services in the community.

With 22% of the study area's population, Cabrini-Green has 29,314 persons within its boundaries. Predominantly Black, almost 55% of the community resides in public housing projects. Within its area, Cabrini-Green contains the largest percentage of persons under 19 (63%) in the study area. The result is a very large median

household size of 3.69 persons compared with 2.91 for the City of Chicago. Thus, Cabrini-Green has a low percentage of persons in the labor force (28%).

The Cabrini-Green projects dominate a classic inner-city ghetto through which the Ravenswood-Evanston tracks wind their way. Unemployment and crime are among the most serious problems in this area, and the present elevated contributes to both of them. All the stations of the present system are located at the periphery of an area with little bus service, forcing those people living near the center (the majority) to walk 3/4 of a mile to board a train. Since the only jobs available to them are usually located in the periphery of the city, (other than those in the Montgomery Ward complex) and since car ownership is minimal, reliance on rapid transit is essential.

Underneath the present "L" structure, the land is a junkyard. It is also a hazard to the residents, due to the ease of concealment and escape it affords potential criminals.

e. West Madison

The West Madison area is bounded by Ashland Avenue on the west, Randolph Street on the north, Halsted Avenue on the east, and the Congress Expressway on the south.

The Lake Street elevated and the proposed distributor both pass through an area of mixed land uses west of the Loop, with one of Chicago's skid rows along Madison Street. Further west, commercial buildings are gradually supplanted by apartments, and another ghetto begins at Ashland Avenue.

The West Madison community has 5,876 persons living within its boundaries, 16% of its population is 65 years or older. The mean family income of $2,000 is the lowest in the study area. A large percentage of the people who reside in the West Madison area live in old hotels. The area is scheduled to be redeveloped as part of an urban renewal area.

In addition, West Madison is a light industrial and warehousing area. The Randolph Street Market is also located in this area.

f. Taylor Street Area

The Taylor Street community is an area bounded by the Congress Expressway on the north, the University of Illinois on the east, Roosevelt Road on the south, and Ashland Avenue on the west.

The Taylor Street community is an Italian neighborhood adjacent to the University of Illinois campus and contains 6,453 persons. With a mean family income of $8,800

and 42% of its population in the work force, Taylor Street is a fairly stable residential community.

Taylor Street is one of the three southwest communities in the study area in which the proposed transit schemes do not directly affect.

g. South of Circle Campus (Blue Island Area)

The South of Circle Campus Area is located south and adjacent to the Taylor Street area and is bounded by Ashland Avenue on the west, Blue Island Street on the east, 16th Street on the south, and Roosevelt Road on the north.

South of Circle Campus is the area south of the Taylor Street community and also is not affected directly by any of the transit schemes. There are 16,065 persons in the South of Circle Campus community, containing 12% of the study area's population. Unlike Taylor Street area, South of Circle Campus is 94% Black, with a mean income of $4,300 and 25% of its population is under 19 years of age. Most of the persons who reside in the area live in the Abla Homes, a large public housing project, housing 13,068 persons.

In addition to its residential function, this area is famous for its open market along Maxwell Street and its wholesale produce markets along South Water Street.

h. Pilsen

The Pilsen community is south and adjacent to the South of Circle Campus community and is located between Ashland Avenue on the west, Cermak Road on the south, the Dan Ryan Expressway on the east, and 16th Street on the north.

Pilsen, centered along 18th Street, is separated from the city's center by the river, an elevated expressway and the railroad embankment on 16th Street.

Pilsen, with 20,728 persons, is a predominantly Spanish speaking neighborhood (76%) located in the extreme southwest corner of the study area. This area, along with South of Circle Campus Area and the Taylor Street Area, will not be directly affected by transit alternatives. This may be reflected by the fact that, along with the Taylor Street Area, it has the largest incidence of automobile usage in the study area (48%). Thirty-one percent of the Pilsen community are members of the work force who average $7,300 annually.

i. Chinatown

Chinatown is a small triangular shaped community bounded by Archer Avenue on the northwest, the Stevenson Expressway on the south, and the Franklin Street connector on the east.

Chinatown, centered around Wentworth Street south of Cermak Road, is well integrated into the city's trans-

portation system: the Dan Ryan line has a station one block away from the center of the community, and the Jackson Park elevated also stops two blocks further away on Cermak.

The most stable and smallest of the communities (3% of the study area's population) is Chinatown with 4,475 persons. A mixed residential/commercial area, it caters to the tourist trade. The average family income is $8,100 with 41% of its population employed as members of the work force.

A small public housing complex, Archer Courts, with 325 people, is located in Chinatown.

j. Near South Side Community

The Near South Side Community is an elongated community which is bounded by Michigan Avenue on the east, the Stevenson Expressway on the south, Roosevelt Road on the north, and on the west by Clark Street between Roosevelt and 21st Street and by the Franklin Street connector from 21st Street to the Stevenson Expressway.

According to the 1970 Census, 8,767 people reside in the Near South Side Community, 94% of whom are Black. With an average mean income of $4,700, 24% are members of the work force. Two remaining large segments of the population were the elder-

ly (11%) and the youth (40%). The elderly are concentrated in two high-rise public housing projects along Cermak Road between Clark and State Street. A high-rise public housing project is also located in the same area and extends to the Stevenson expressway. Over 50% of the persons in the Near South Side Community reside in these housing projects.

The area north of the public housing complex contains many railroad tracks and warehouses.

Each of the twn communities will be compared to the proposed plan in terms of both positive and negative impacts. This more detailed analysis of community needs and opportunities created by each transit scheme appears in Chapter IV.

2. Traffic and Transportation

Another important part of the existing environmental setting is traffic and transportation characteristics in the CUTD area. Traffic in the Central Area of Chicago is a major problem as it is in any large city. The streets are crowded with autos, trucks, and buses. The sidewalks are crowded with pedestrians during the day. Pedestrian and auto conflicts caused by these overcrowded conditions are the impetus for many accidents. Perhaps the biggest problem is parking. Parking in the Loop and the North Michigan Avenue area is hard to find and often very expensive.

Public transportation provide an excellent service to the Loop area. Rapid Transit, commuter railroads, and buses give good coverage to almost all destinations within the Loop. However, most of the rest of the CUTD District is not covered adequately by public transportation. The North Michigan Ave. area is served by only one rapid transit line along State St. There are several bus routes through the area including shuttle buses from the commuter rail stations. Some of the residential communities along the rapid transit tracks are served very well by public transit. But communities, such as Pilsen that are not near the transit lines are not adequately served. Traffic and transportation is discussed in greater detail in Chapter IV.

3. Noise and Air Quality

Noise and air quality are important issues today in any large city. The elevated system in Chicago makes noise problems particularly acute. In a recent paper entitled "Background Noise Study in Chicago" by Caccavari and Schechter, the authors state that "the major source of noise and the dominating factor in affecting community background noise levels are transportation noises" and "only in isolated instances do other sources dominate the urban noise levels." Surveys of residential and commercial around Chicago showed that peak (L_{10} - the noise level exceeded 10% of the time in a given hourly sample) noise levels ranged from 42dBA to 75dBA. Background (L_{90})

noise levels ranged from 31dBA to 61dBA. Downtown background noise was as high as 70dBA during peak hours. The elevated transit line is probably the worst culprit for high noise levels. Typical noise levels at 50 feet from the CTA elevated tracks range from 95 to 102 dBA for 2 car trains operating at 30 to 50 MPH. This level is well above the recommended maximum noise level of 70dBA.

Air quality, again as in all major cities, is a problem in Chicago. Both Federal Government and the State Government have Continuous Air Monitoring Program (CAMP) stations in the area. A review of their data shows that Chicago's air quality does not meet the standards set up by the U.S. Environmental Protection Agency in 1971. An Implementation Plan for the Chicago region is now under preparation that will bring all air pollutant levels within the Federal Air Quality Standards by 1975. Both noise and air quality are discussed at length in Chapter IV.

I V. PROJECT IMPACT ON ENVIRONMENT

This section specifies the impacts of the project on the various factors affecting environmental quality.

Study was made of the impact on factors in the four general categories of physical environmental impacts, economic impacts, social impacts, and visual impacts. The specific factors studied under each of these categories were those considered to be impacted in some way by this particular project.

The study of each factor impact was conducted from basically the point of view of the investigator. The findings, therefore, do not necessarily reflect a consensus of opinion by the entire Environmental Impact Analysis staff, but rather the opinion of that professional with special knowledge of the impacts on each particular factor.

A. Social Impacts

In preparing this social impact analysis of the Chicago Urban Transportation District's proposed transit improvements, a series of social criteria were established against which to measure the impact of the proposed alternative. For the purpose of this analysis, four principal criteria have been developed:

- Accessibility: the ability of community residents in the study to travel directly to the Loop, with its high concentration of human services, employment, recreation, culture, and commercial activity, as well as other destinations.
- Community Cohesion: the extent to which a given alternative increases or diminishes the stability, safety, and security of a community.
- Community Development: the extent to which a given alternative creates the opportunity for commercial or other types of economic development which can be shared in by community residents. In addition, the extent to which job development opportunities are possible for the development of human services, such as community centers, hospitals, clinics, and other types of human services which specifically meet the needs of affected communities.

- Socio-economic Interaction: the extent to which an alternative increases the perception and reality of safety and security for the Loop; thus, promoting the use of the central business district by a full range of the city's population.

The impacts of the proposed scheme in light of these criteria were evaluated for ten identifiable neighborhoods in the CUTD: Cabrini-Green, North Clark, North Michigan, West Madison, Near South, Chinatown, Taylor Street, South of Circle Campus and Pilsen plus the Loop.

The relationship between the needs of these areas and the social impacts of the proposed project is described in the following section:

1. The Loop
   a) Needs

The needs of the Loop include:

- accessibility by residents from all parts of the City for employment, human services, and recreation;

- improved efficiency as a transfer point to all parts of the City;

- a perception by Chicagoans of the Loop as a neutral zone amenable to all citizens; and

- a perception of the Loop as a safe and secure environment.

a) Relationship of Impacts to Community Needs

The proposed scheme would increase accessibility to the Loop from six of the identified communities within the CUTD area: Cabrini-Green, North Clark, North Michigan, West Madison, Near South, and Chinatown. Access from Taylor Street, South of Circle Campus, and Pilsen would not be improved. Present coverage of the Loop area would be preserved, as well as all original destination service currently available. The Distributor subway would adequately serve Union, Chicago and Northwestern, and Illinois Central Stations, as well as McCormick Place. Its line north of the river would provide excellent service to Northwestern University Medical Center.

In addition, the proposed scheme would provide transit service to the University of Illinois, Circle Campus, beyond that offered by the Congress-Milwaukee-Douglas subway. This additional service would increase the accessibility of the Campus to the full Chicago Area population. It would be possible that this increased transit service combined with a marketing plan might increase the student and faculty use of transit, reducing

parking pressure in the Taylor and South of Circle Campus communities.

The proposed scheme would provide pedestrianways along Randolph and Wabash, thus providing numerous entrances to streets and buildings which would reinforce the Loop as the setting for the interaction of the entire region's population.

2. North Michigan

a) Needs

Several needs were identified in the North Michigan Avenue area; they are:

- maintenance of community development programs
- maintenance of community stability
- accessibility to Loop and areas to the south

b) Relationship of Impacts to Community Needs

The proposed scheme in the North Michigan Area.

1. Community development would be enhanced by making the area more accessible to Loop shoppers and persons utilizing services located in other parts of the City.
2. Maintenance of community cohesion (stability) is enhanced by introducing rapid transit service that would ease the traffic congestion, thus encouraging and easing pedestrian circulation.

3. Accessibility ot the Loop would be faster and more efficient allowing faster service to workers who enter the Loop (25%). Direct transit service is provided to the south also allowing the cultural facilities along the southern edge of the study area to become accessible to residents of North Michigan area. Direct transit service would aid the other residents of Chicago by allowing them a direct link to services and employment available in North Michigan, such as Northwestern Medical Complex.

3. North Clark

a) Needs

Priority needs identified are:

- services for elderly
- employment
- maintenance of community cohesion

b) Relationship of Impacts to Community Needs

The proposed scheme does not pass directly through this area.

1. Special transit needs of the elderly who comprise 21% of the population should be considered in nearby stations.

2. Portions of the scheme built near the area might have either a positive or negative effect. Positive in that more development might be established along the transit line and could spill over into this area. Negative because the development occurring on North Michigan is likely to have development implications in the North Clark area resulting in development which might benefit the more affluent community, causing displacement among the community's residents.

4. Cabrini-Green

a) Needs

Several needs were identified in the Cabrin-Green area:

- accessibility to employment and to the Loop
- availability of more human services programs, including a special interest given to youth-oriented programs
- community safety and security
- community development
- economic development

b) Relationship of Impacts to Community Needs

1. The proposed scheme would provide the residents with direct access to the Loop which would increase their accessibility to human services (such as medical, banking, legal), see Appendix 1 and would

also utilize the Loop as a transfer point to services in other parts of the City (such as Cook County Hospital and the University of Illinois on the west side or the cultural facilities south) and make employment possibilities more accessible to Cabrini residents.

2. An indirect impact of the transit system which should be pursued is improved safety and security in the community. Several things could be done to meet this objective: (a) the removal of the elevated, (b) safety design in the transit stations, and (c) consideration of a cultural and multi-service center. Such a community center would help to stabilize the area, preventing further deterioration while encouraging businesses to be established.

3. Economic development - the location of a station in the Cabrini-Green Area will likely create the opportunity for commercial development. Such development should be encouraged. In addition, the Community Development Corporation concepts should be examined as a means of ensuring local participation in such a development.

5. West Madison

a) Needs

several areas of need have been defined for West Madison:

- accessibility to:
  (1) employment,
  (2) human services,
  (3) services for elderly;
- economic development with special attention given to displacement and relocation; and
- community safety and security.

b) Relationship of Impacts to Community Needs

The proposed scheme would offer access to human services and employment through the Chicago area. In addition, the scheme would encourage new development west of Clinton on Monroe and Morgan. New developments would have the double edged effect of removing many of the blighted areas of the neighborhood, while at the same time possibly destroying some of the area's low rent housing.

6. Taylor Street

a) Needs

Several needs were cited as important aspects of the community, which are:

- accessibility to employment and human services;
- concentration of service needs for both youth and the elderly;
- maintenance of community cohesion; and
- limited parking due to pressure from parkers. at the University of Illinois.

b) Relationship of Impacts to Community Needs

The proposed scheme creates the opportunity of reducing parking pressure on the Taylor Community by providing additional transit, thereby augmenting the Congress service with the Madison-Morgan extension.

7. South of Circle Campus

a) Needs

The prime areas of need cited for south of Circle Campus include:

- accessibility to employment and human services;
- special services oriented to the high concentration of youth located here (55%);
- maintenance of community cohesion; and
- community safety and security.

b) Relationship of Impacts to Community Needs

The proposed scheme has no direct impact on the area south of Circle Campus, thereby not fulfilling community needs.

8. Pilsen

a) Needs

Needs identified in the Pilsen community include:

- accessibility to employment and human services;
- special attention and services for youth (46% of population); and
- maintenance of community cohesion.

b) Relationship of Impacts to Community Needs

The proposed scheme bypasses the area and therefore is not expected to have any impacts relative to community needs.

9. Chinatown

a) Needs

The priorities that have been defined for Chinatown include:

- accessibility necessary to good economic stability and stimulation of tourism in the area; and
- maintenance of community cohesion.

b) Relationship of Impacts to Community Needs

Chinatown is the most self-sufficient of the communities. The proposed scheme does not directly affect it. Chinatown presently has good access through the Dan Ryan Line and two blocks further east through the Jackson-Howard Line. However, the changes in alignment in the Loop in the proposed scheme would increase accessibility to services located in other sections of the City.

10. Near South Side

a) Needs

Major needs identified on the near south side include:

- accessibility to employment and human services and the Loop;
- community safety and security; and
- community development.

b) Relationship of Impacts to Community Needs

The near south side presently has good rapid transit service with stops at Roosevelt Road and Cermak Road along the Jackson-Howard and Lake-Dan Ryan Lines. However, under the proposed scheme, the existing elevated structure will not be replaced or improved on transit lines in the south side. Therefore, little or no improvement to the community safety and security problem nor impetus for community development would be afforded by the proposed scheme.

A. Social Impact

This section is being prepared from material included in Chapters III and IV of W. V. Rouse report (attached).

B. Relocation

1. Required relocations

Relocation will occur as a consequence of land takings or the impossibility of preserving buildings above the project's rights-of-way. At this point, when alignments have not been finalized, exact numbers of relocations cannot be arrived at.

The alignment proposed in 1968 would have entailed a total of 494 relocations (363 commercial establishments, 24 industrial, and 104 households). Of the commercial relocations, 300 are presently located in one building at the corner of Van Buren and Franklin. This building would be demolished to accomodate the interchange of the Loop subway and Franklin Street extension. Thirty-four of the displaced households are located in a building on West Lake Street which occupies land over which the connection between the existing elevated and the proposed subway would be built.

A major consideration in the preliminary planning of the project has been the maximum utilization of existing rights-of-way. As a result of this, the number of required relocations has been kept to a minimum.

2. Legal guidelines for relocation

All necessary relocation procedures will be carried out in compliance with the relevant provisions of the Federal Relocation Assistance and Real Properties Acquisition Policies Act of 1970. The local agency responsible for providing relocation services pursuant to the Federal Act is the Relocation Division of the Department of Urban Renewal; City of Chicago. The City has designated this division as its Central Relocation Agency (CRA) in accordance with the Federal guidelines.

The CRA prepares or coordinates all relocation plans for proposed programs and projects causing displacement, including the preparation of displacement and housing resource estimates. It also provides actual relocation services necessary for programs and projects being executed, and assists in the preparation of claims for relocation benefits where applicable.

It is also the responsibility of the CRA to coordinate and provide all necessary job, financial, educational, health and other services, and counseling needed by relocatees. The actual access to these services may be either through

the CRA's direct intervention or referral. Further, these services are open-ended; they are generally terminated by improvement in the situation of individual households rather than by time or financial constraints. Prior relocation activities of the CRA have exhibited its capability in discharging its obligations. Without knowledge of the precise rights-of-way of the segments of this project or a detailed housing inventory, it is impossible to determine the specific difficulties the CRA will face in relocating households and businesses from the transit rights-of-way. However, experience gained by CRA in previous relocation programs, will aid in the equitable solution of potential relocation problems arising from this project.

3. Available housing

The number of displaced households in the proposed alternative represents a miniscule fraction of Chicago's almost 800,000 housing units. In 1970, city-wide vacancy rates were high, averaging 6.7%. The number of residential displacees is so small that total number of migratory relocations will not be significantly affected, and there will be no appreciable change in housing market con-

ditions. Therefore, it seems safe to anticipate that with the aid of the CRA, all displacees will be able to find comparable or improved housing.

4. Relocation of the elderly

Understandably, relocation for elderly dislocatees constitutes a more drastic wrenching of life-styles than for other people. Thus, the CRA's staff attempts to alleviate this population's distress by providing an abundance of guidance, assistance, and reassurance. In this respect, locating acceptable housing for the elderly has been less of a problem than administering to their socio-economic concerns. More to the point, for the elderly, seeking appropriate relocation housing is far more than merely finding comparable, decent, safe, and sanitary dwelling units. Their new homes should be in areas which do not compromise their previous independence or mobility, and, whenever possible, the new homes should improve their present conditions.

5. Relocation of Businesses

A University of Chicago study, _Impact of Urban Renewal on Small Business_*, found that the businesses which

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* Berry, Brian J. L., Sandra Parsons, Rutherford H. Platt; _Impact of Urban Renewal on Small Business_; Center for Urban Studies; University of Chicago; 1968

have been most likely to liquidate when faced with the prospects of relocation are generally identifiable. They are small, low-volume firms with elderly managers, requiring small capitalization and few specialized skills. Although the national liquidation rate for businesses being relocated in 1968 was about one in three, as the University of Chicago's study found, it is entirely plausible that many could have remained viable if alternative redevelopment concepts, better information, more or better assistance and proper compensation had been available. The 1970 Uniform Relocation Act brings much of this new thinking to bear on the small-business dislocations it regulates. Armed by the Act with a liberalized set of directives and a broader range of services and financial recompensation the CRA can, perhaps, reduce the rate of liquidations among dislocated businesses.

The 1970 Uniform Relocation Act allows consultative services to be provided to eligible displaced firms. The CRA shall determine the individual need for relocation assistance through discussions with each business. The scope of these discussions shall include such items as space, market and other requirements, traffic patterns, the total number of employees, and the number of minority employees.

Current and continuing information on the availability, cost and square footage of comparable land will be provided to displaced businessmen. These owners will also be referred to real estate brokers who may be able to help them obtain suitable accommodations.

Further information regarding property values, growth potentials in various areas, zoning ordinances, and other general and economic features will be supplied by the CRA. These items will be produced to enable relocated businesses to make informed decisions regarding their new locations. Further assistance for business relocation can come from the Mayor's Committee for Economic and Cultural Development and the Small Business Administration.

C. Visual Impact

1. Alternative 6 - Summary Description

The proposed system represents a maximum use of subway construction techniques throughout the Loop with attendant disruption to the ground level public sector during construction. Immediate opportunities for urban design are limited to joint development improvement of the affected rights-of-way. The central business district has no visual definition after subway construction is completed, although streets formerly occupied by the Loop structure may be upgraded by joint development after construction. All approaches and departures to and from the city center are underground.

The construction of the distributor throughout the residential areas north of the Chicago River will provide construction disruption and some opportunity for inherent design profit in an already highly developed residential district of the city.

Alternative 6 compliments all existing individual developments accomplished on the basis of the 1968 plan, and provides great opportunities for future long-range development; it holds great promise for urban design development opportunity

on a scale affecting the upgrading of the Loop area as a whole, and eliminates noise control and natural light problems within the present aerial right-of-way.

The urban design possibilities of alternative 6 will be defined by further development of work in progress by the supervising consulting architects, and by further development of the Architectural Outline Criteria for the Chicago Central Area Transit Project. The latter represents a high degree of professional competence.

2. Background

This analysis of visual impacts to the CCATP area, and the Loop area in particular, is based primarily on the proposed Scheme 6, though the analysis extends to Schemes 4, 11, and 12 as well, where considered appropriate.

Pertinent issues regarding visual impact are identified in terms of the user and non-user, compatibility, and conformity with existing and proposed land use and short and long term effects of the construction of the systems under consideration.

The following basic visual criteria served as the means for evaluating the schemes considered in this analysis:

a. The system should reflect in its selection of alignment and vertical configuration and in the design of its structures the highest standards in Planning, Urban Design, Architecture, Landscape Architecture, and Engineering.

b. The system should fit into the urban fabric in such a way as to minimize negative visual impacts and potential conflicts with existing and proposed land users and physical form.

c. The system should afford to its users, through the design of its facilities, associated pedestrian environs and the provision of views wherever possible, an interesting and informative experience.

d. General architectural and urban design guidelines and criteria listed below are considered to be applicable as well, regardless of the scheme being considered.

    1) The completed transit system must compliment the radial form of Chicago and the surrounding region, and the position of the Loop as the regional cultural and commercial center must be reinforced by the transit system.

2) The new Loop transit system must continue to function as a connective element strongly defining the Loop area and its position as the transit hub.

3) The system serving the Loop must provide arrivals and departures appropriate to the character of the business district as opposed to suburban areas: the approach to the Loop should offer a panoramic view, clear patron orientation to destinations, visible and carefully integrated points of entry and exit, and minimum disruption to established user patterns.

4) The construction of the system must provide visible and immediate proof of the improvement to the Loop area that is inherent in the improvement of transit service. Construction must minimize disruption and maximize immediate return: rapid **increase** in the viability of the ground level public sector must be a primary criteria for alternative selection.

5) The system must provide improved transit-integrated pedestrian circulation at ground level within the Loop as a necessary compliment to improved transit service both as a reinforcement of the ground level public sector, and as a solution to the twin problems of weather and automotive traffic.

This criteria recommends a joint development conversion of selected streets to pedestrian use and phased construction of an arcaded street facade as an integral part of such pedestrian malls; or in the case of elevated transit service, the development of the entire street as an enclosed galleria.

6) In addition to providing inherent and immediate gain in the Loop area, the system must provide long range development opportunity for related goals: Development of the riverfront as an accessible urban amenity; joint development planning of the lakefront and I. C. Air-rights areas; and compatibility with existing plans (e. g., Chicago 21 and other recent developments.

2. Visual Impacts to the Transit Rider

The existing elevated transit lines within the Loop and approaching it from the north (Evanston and Ravenswood), the west (Lake) and the south (Dan Ryan) provide the transit rider with changing, dynamic views of his city-particularly of Chicago's impressive skyline - that make a transit ride far more informative in visual terms than would be the case

if the same transit lines were subway. Despite the fact that much of the ride on the elevated is through visually blighted areas of the city, the views afforded the rider remain exciting, provide a sense of orientation and arrival, and offer to many riders their only firsthand experience of continual processes of urban growth, change, decay and renewal.

To the extent that Schemes 4, 6 and 11 replace the existing elevated structure they would result in a substantial change to the visual experience of the transit rider. This change would not necessarily be negative if visual environments of high quality, impact, and excitement can be provided by the design of the new subway stations. However, a negative impact would be particularly apparent in the Loop itself, where the rider would be deprived of views of movement past, between, and around the buildings and streets of the CBD.

In this regard, scheme 12 would offer a substantial improvement to the view provided the transit rider by allowing direct visual contact through the continuous glass-roofed galleria, proposed as a part of the new elevated transit structure, to the malled and generally upgraded pedestrian visual environment below.

4. Short-Term Impacts

The construction of a new transit system in Chicago's Central Area would be accompanied by numerous unavoidable short-term visual impacts. These would include: temporary visual blighting of properties adjacent to the construction by the presence of construction equipment and jobsite fences and barriers, increases in amounts of local visible air pollution from construction equipment, and possible temporary removal of natural buffers and/or features to allow for construction.

Careful planning and staging of the construction process would limit both the extent and duration of such short-term impacts. Efforts should be made to utilize pre-assembed elements wherever possible for speeding construction, particularly of any aerial segments, and where cut and cover construction is necessary to utilize temporary "umbrella" or deck structures to maintain visual and functional continuity. An essential and mandatory requirement of all construction not permanently removing an element from the visual environment would be the restoration of public and private property to a condition after construction at least equal to its condition before construction and preferably to a better condition.

5. Long-Term Visual Impacts

Long term visual impacts of the alternative schemes being considered for evaluation primarily result from either the construction of new aerial structures replacing portions of the existing elevated structure or new subway construction that results in the removal of all or portions of the existing elevated structure. These impacts are considered below for Scheme 6 in two contexts - the impacts of the transit construction on the visual character of adjacent areas, and the intrinsic visual design characteristics of the transit line and stations themselves.

a. New Elevated Construction (ref. Figs. C.5.1-3)

In general, the construction possibilities for new aerial structures occur either as replacement for and in the same alignment of the existing elevated structure or along streets with industrial or mixed industrial and commercial uses in buildings scaled such that a new aerial structure would not be incompatible. The exceptions to this statement do not apply to those schemes being considered for final evaluation - numbers 4, 6, 11 and 12.

The following is a more detailed evaluation of the visual impacts on the areas specified for new aerial structures in scheme 6:

1) I. C. Railroad Right-of-Way South of Monroe Street to McCormick Place

The utilization of the I. C. right-of-way for a new on-grade transit line (scheme 6 portaling from subway to grade at approximately Jackson Street, then continuing south to McCormick Place) would have a virtually negligible visual impact to the adjacent area. The utilization of the railroad right-of-way would go unnoticed from Michigan Avenue, Grant Park, or Lake Shore Drive as the existing track level is substantially below the grade level of both the roadways and the park.

Station entrances and pedestrian connections across Lake Shore Drive at Roosevelt Road and McCormick Place, however, could result in important negative visual impacts if not sensitively designed. Construction of these passageways underground as opposed to over Lake Shore Drive would be particularly helpful in reducing potential negative visual impact. This is particularly critical at McCormick Place, where considerable public investment has been committed to the creation of an important contemporary architectural land mark.

2) Franklin Street/Railroad Right-of-Way Connection to Dan Ryan

Scheme 6 proposes the extension of the Franklin Street subway south to the Dan Ryan Line. The extension would portal to grade in the railroad yards just south at Roosevelt

Road, remaining at grade throughout the yard until west of Clark and adjacent to 16th, where it would transition to elevated and connect to existing Dan Ryan service at approximately 18th Street. Construction of this line would cause no noticeable negative visual impacts, as the area is already occupied by numerous rail lines and is for the most part below existing grade of adjacent uses. On the contrary, a substantial positive visual impact could occur if a linear park along the east banks of the Chicago River were included as a joint development measure in the air rights above. The cut and cover construction of the Franklin Street subway extension north of Roosevelt Road and adjacent to and visually buffered from the on-grade line south of Roosevelt Road.

3) Lake Street Portal

A portal structure allowing new subway construction to make the transition to an elevated vertical configuration and connect to the existing Lake Street "L" is proposed for scheme 6.

Located well west of the Chicago River on Lake Street, between Paulina and Damen, the portal occurs in a predominantly residential area interspersed with marginal commercial uses. The problem of blocked views and access across Lake for the length of the portal would exist for this area, but so would the

opportunity to maintain, with the elimination of parking lanes, 2 lanes of traffic in both directions on either side of the structure (due to the wide available right of way). A portal structure is, of course, not as compatible with the scale of the adjacent residential buildings as with the industrial buildings further east, though not substantially different than the existing "L". However, the removal of the "L" to the east of the portal location for scheme 6 would be a substantial net improvement to the visual character of the area, particularly for the new housing developments south of Lake and West of Ashland.

b. Subway Replacement of Existing Elevated Structures

The following list outlines the extent of the existing aerial transit structure that would be removed with the construction of the alternative 6 and replaced with subway construction:

1) Removal of existing elevated Loop on Wells, Van Buren, Wabash and Lake Streets.
2) Extension of "L" north from the Loop on or adjacent to Franklin Street to North Avenue and west on North Avenue to existing "L" in vicinity of Bissell and Sheffield Streets.
3) Extension of "L" west from Loop on Lake Street to vicinity of Wolcott Street.

4) Extension of "L" south from Loop on or adjacent to Wabash to Roosevelt Road.

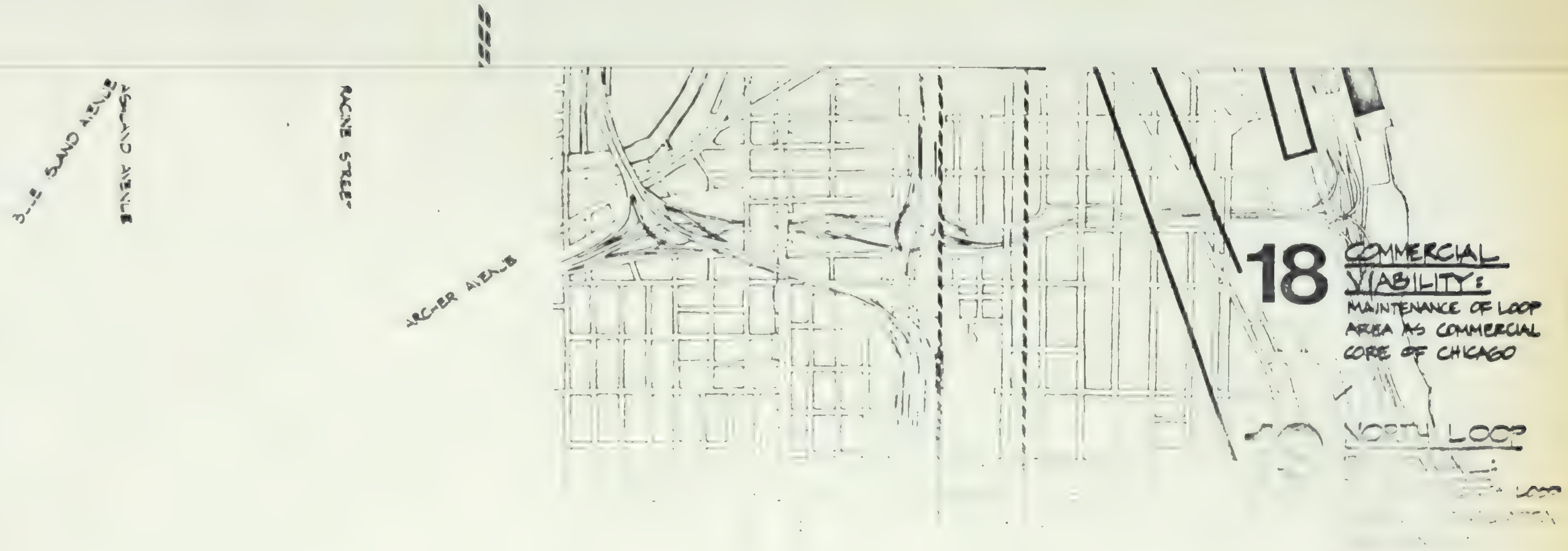
In general the impact of removal of the elevated structures outside of the Loop area will be a substantial improvement to the visual environment. This is particularly true in the primarily residential areas north of the Loop adjacent to Franklin Street (Cabrini-Green), North Avenue, and Ogden Avenue and in the mixed residential-commercial service industry areas adjacent to Lake Street. Removal of the elevated in these areas is called for totally within the CCATP area by the proposed scheme.

Replacement of the southern extension of the existing "L" from Wabash to Roosevelt Road with a new subway in scheme 6 would also substantially improve the visual environment in this area. However, the scale of the buildings and land use patterns in this area are not incompatible with the existing (or new) elevated structure to the degree of the residential areas discussed above.

New transit stations built with these new subway replacements for the elevated would have little visual impact on their immediate neighborhoods, as the only visible evidence of the stations would be limited to the station entrances. Architectural design of the entrances compatible with the station surroundings could be of net benefit to the visual environment of the station areas.

Likewise, the subway station entrance areas for the new Loop subways replacing the "L" could be designed as visually attractive additions to the Loop area, through only those underground pedestrian connections necessary for efficient system utilization can be readily proposed as joint development opportunities. The new Loop area subway could also generate numerous underground pedestrian concourses, lined where possible with commercial activities. If carefully designed and modeled after such well known examples as the concourses of Place Ville Marie and Place Bonaventure in Montreal, they would be welcome additions to the visual environment of pedestrians in the Loop.

Of course, the major beneficial visual impact of scheme 6 would be the removal of the existing elevated Loop itself. While the elevated structure does provide a unique sense of enclosure to the street views within its boundaries, the removal of the structure and its indeniably blighting visual effects would substantially improve the visual environments of Wells, Van Buren, Wabash and Lake Streets. Substantial positive visual impact would also result from pedestrian improvements to these streets that would be built with the removal of the "L".



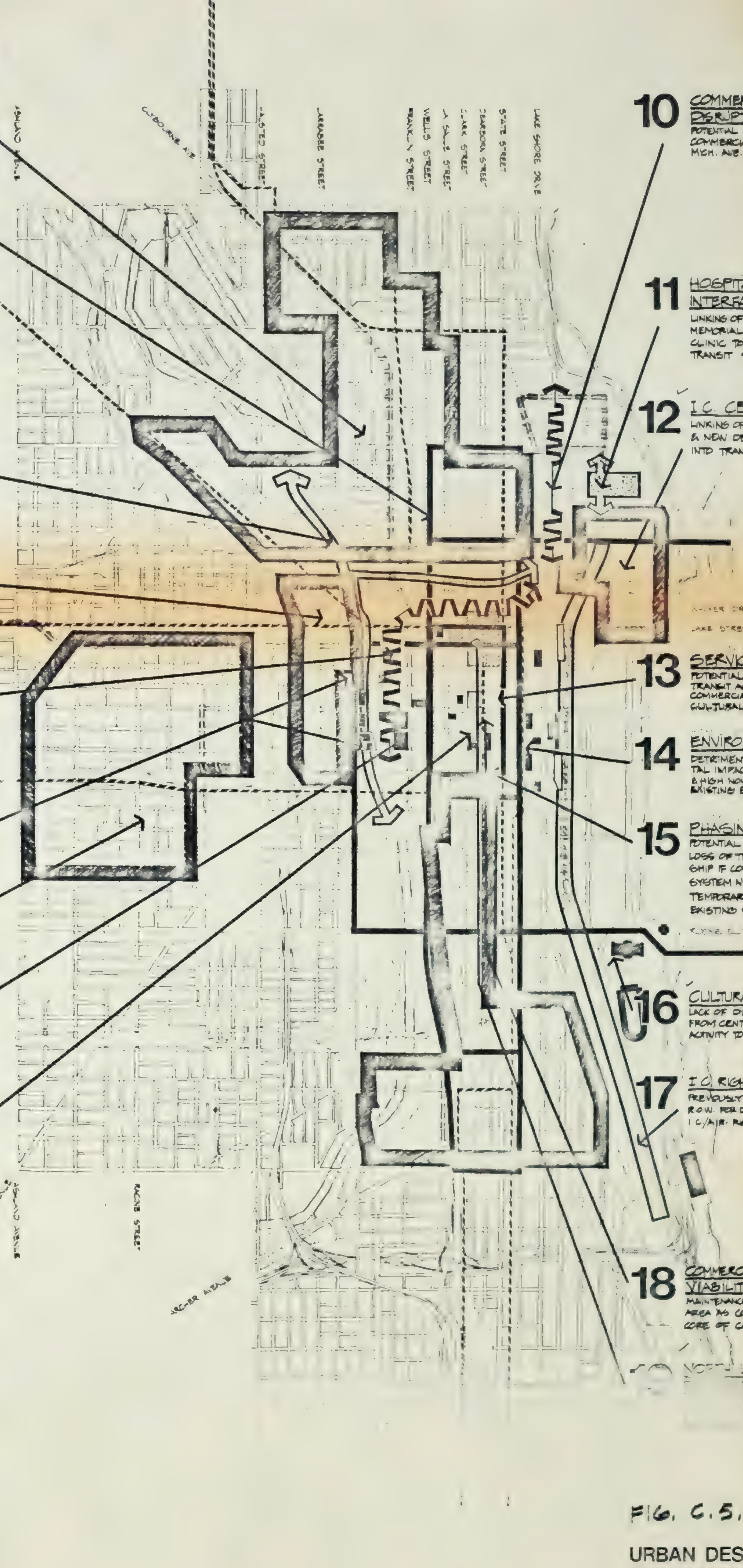
18 COMMERCIAL VIABILITY:
MAINTENANCE OF LOOP AREA AS COMMERCIAL CORE OF CHICAGO

FIG. C.5. 1

URBAN DESIGN & PLANNING ISSUES

LEGEND

MTI TRANSIT PLAN	▬ ▬ ▬
EXISTING AERIAL	——
EXISTING SUBWAY	------



1 NEW COMMUNITIES DEVELOPMENT:
✓ SERVICE AND ACCESSIBILITY TO NEW COMMUNITIES DEV'P NORTH & SOUTH OF LOOP AREA AS PROPOSED IN "CHICAGO 21" PLAN

2 PROPOSED PEOPLE-MOVER:
✓ COMPATIBILITY OF SYSTEM WITH POSSIBLE FUTURE PEOPLE-MOVER SYSTEM AS PROPOSED IN "CHICAGO 21" PLAN LINKS NEW COMMUNITIES TO LOOP AREA

3 RAILROAD RIGHT-OF-WAY:
AVAILIBILITY OF EXISTING RAILROAD R.O.W. AT LOW COST FOR TRANSIT USE.

4 WESTERN GATEWAY DEV'P:
✓ SERVICE TO POTENTIAL DEV'P IN "WEST FRAME" AND WEST OF AND ADJACENT TO CHICAGO RIVER

5 WACKER DR TRAFFIC:
POTENTIAL DISRUPTION TO TRAFFIC AND TRUCKING SERVICE DURING CONSTR'N @ WACKER DRIVE (EAST-WEST LEG SCHED'D FOR RE-CONST'N W/IN 10 YRS REGARDLESS DUE TO PRESENT LIMITED CAPACITY)

6 COMMUTER SERVICE:
✓ LACK OF DIRECT CONNECT'NS OF COMMUTER-RAIL STATIONS W/ LOOP-AREA TRANSIT

7 WESTERN COMMUNITY DEVELOPMENT:
✓ TRANSIT ACCESS TO POTENTIAL MIXED-USE DEV'P IN WESTERN AREA ADJACENT TO CHICAGO CIRCLE CAMPUS

8 RECENT CONSTRUCTION:
COMPATIBILITY OF NEW TRANSIT PLAN WITH DEV'P BUILT IN RESPONSE TO 1958 PLAN

9 PEDESTRIAN LINKS:
INITIAL ELEMENTS OF PEDESTRIAN SYSTEM LINKING TO TRANSIT EXIST W/ RECENT CONST'N OF PLAZAS & CONCOURSES @ CIVIC CENTER, FIRST NAT'L BANK, & FED'L CENTER

10 COMMERCIAL DISRUPTION:
POTENTIAL DISRUPTION TO COMMERCIAL AREAS ALONG MICH. AVE. DURING CONST'N.

11 HOSPITAL-TRANSIT INTERFACE:
LINKING OF NORTHWESTERN MEMORIAL HOSPITAL & CLINIC TO REGIONAL TRANSIT SYSTEM

12 ✓ I.C. CENTER:
LINKING OF ILLINOIS CENTER & NEW DEV'P TO NORTH INTO TRANSIT SYSTEM

13 SERVICE TO LOOP:
POTENTIAL INCREASE IN TRANSIT ACCESS TO BUSINESS COMMERCIAL, CIVIC, & CULTURAL ACTIVITIES

14 ENVIRONM'L BLIGHT
DETRIMENTAL ENVIRONMENTAL IMPACT (VISUAL BLIGHT & HIGH NOISE LEVELS) OF EXISTING ELEV'D STRUCTURE

15 PHASING:
POTENTIAL LONG-TERM LOSS OF TRANSIT RIDERSHIP IF CONST'N OF NEW SYSTEM NECESSITATES TEMPORARY REMOVAL OF EXISTING SERVICE

16 ✓ CULTURAL CENTERS:
LACK OF DIRECT ACCESS FROM CENTERS OF CULTURAL ACTIVITY TO REGIONAL TRANSIT

17 I.C. RIGHT-OF-WAY:
PREVIOUSLY DEDICATED R.O.W. FOR DISTRIBUTOR IN I.C./AIR. RIGHTS.

18 COMMERCIAL VIABILITY:
MAINTENANCE OF LOOP AREA AS COMMERCIAL CORE OF CHICAGO

LEGEND

1971 TRANSIT PLAN ▬ ▬ ▬
EXISTING AERIAL ———
EXISTING SUBWAY - - - - -

FIG. C.5. 1

URBAN DESIGN
& PLANNING
ISSUES

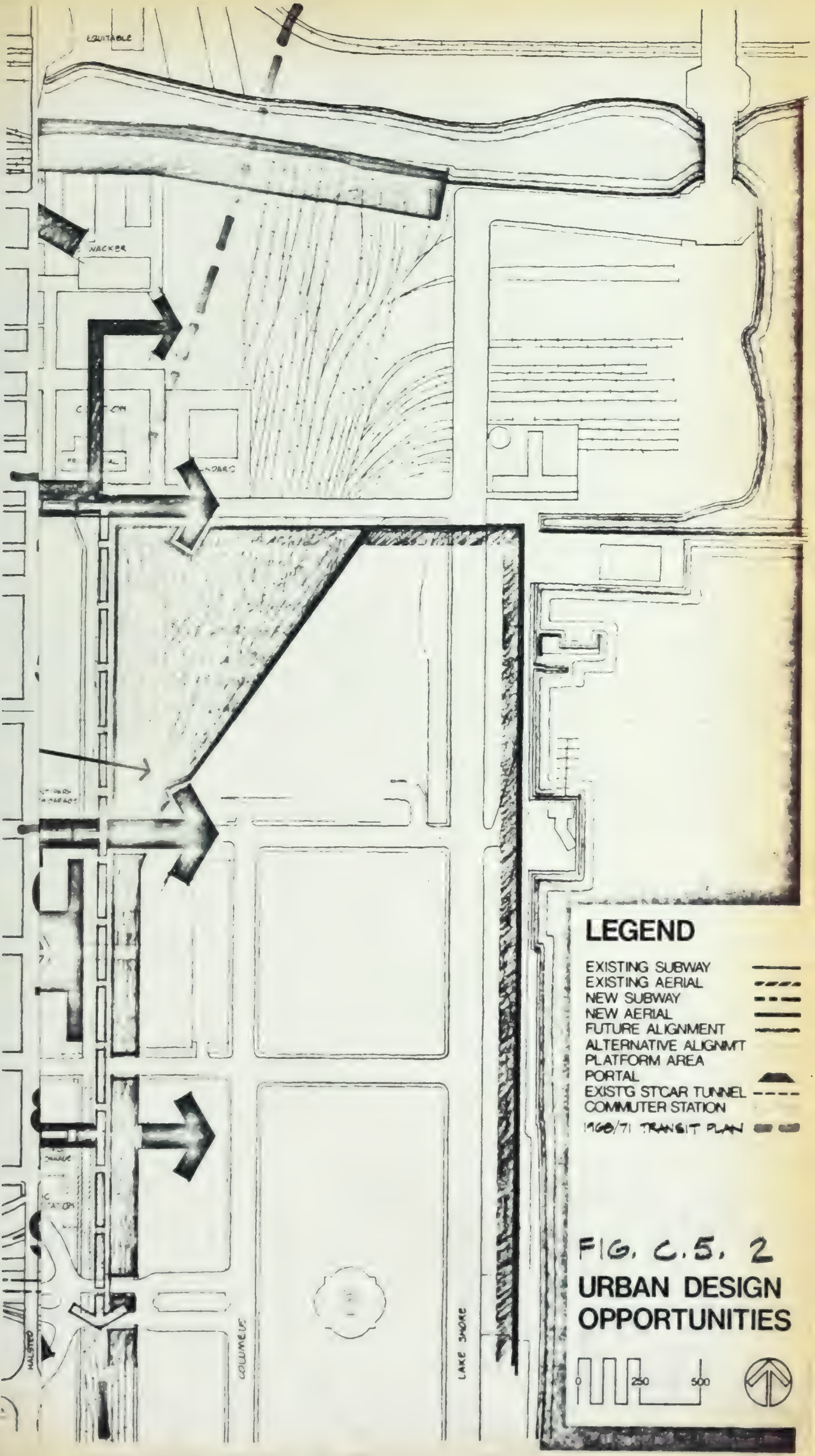
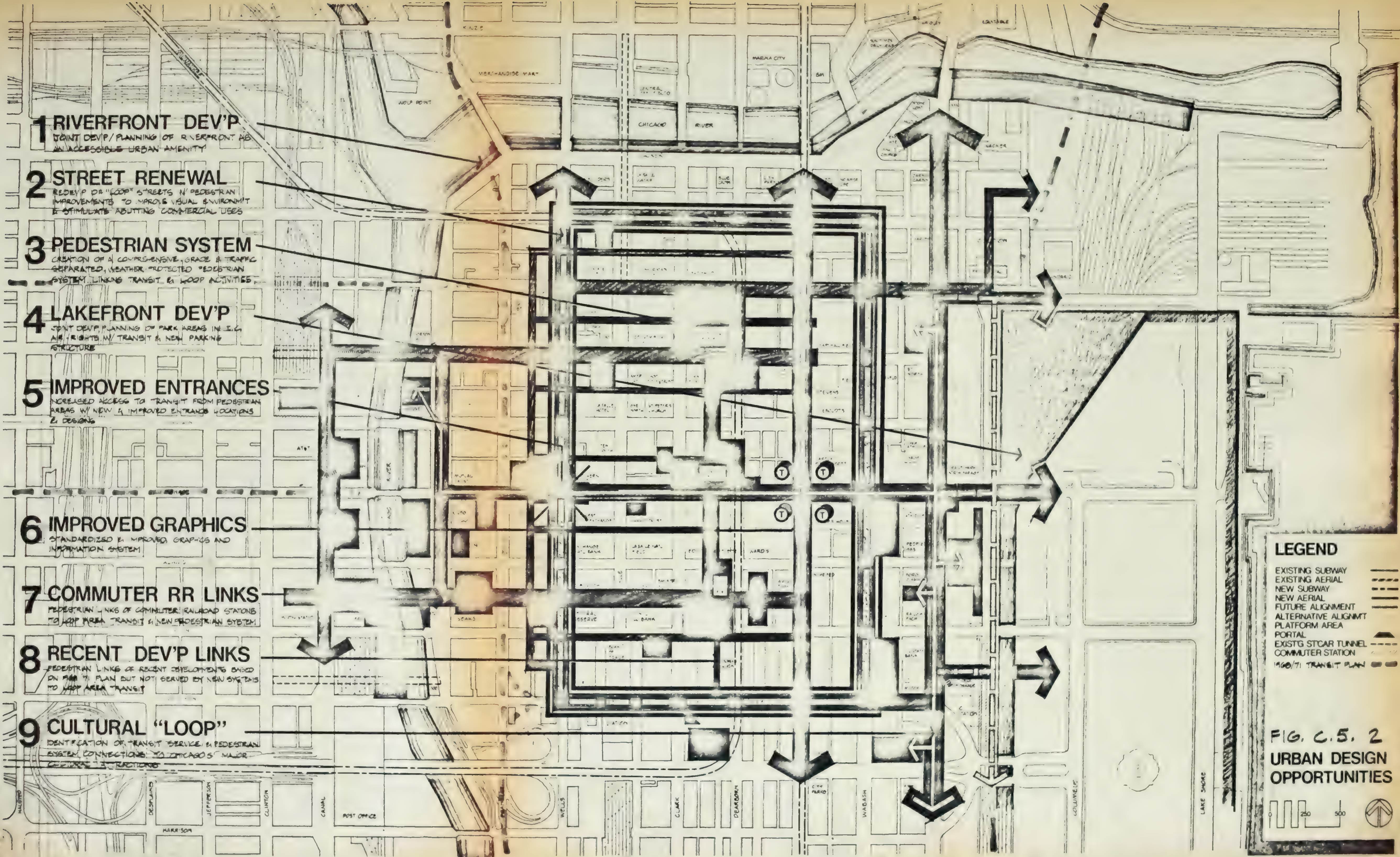


FIG. C.5. 2

URBAN DESIGN OPPORTUNITIES



1 RIVERFRONT DEV'P
JOINT DEV'P/PLANNING OF RIVERFRONT AS AN ACCESSIBLE URBAN AMENITY

2 STREET RENEWAL
REDEV'P OF "LOOP" STREETS W/ PEDESTRIAN IMPROVEMENTS TO IMPROVE VISUAL ENVIRONM'T & STIMULATE ABUTTING COMMERCIAL USES

3 PEDESTRIAN SYSTEM
CREATION OF A COMPREHENSIVE, GRADE & TRAFFIC SEPARATED, WEATHER PROTECTED PEDESTRIAN SYSTEM LINKING TRANSIT & LOOP ACTIVITIES

4 LAKEFRONT DEV'P
JOINT DEV'P, PLANNING OF PARK AREAS IN I.C. AIR RIGHTS W/ TRANSIT & NEW PARKING STRUCTURE

5 IMPROVED ENTRANCES
INCREASED ACCESS TO TRANSIT FROM PEDESTRIAN AREAS W/ NEW & IMPROVED ENTRANCE LOCATIONS & DESIGNS

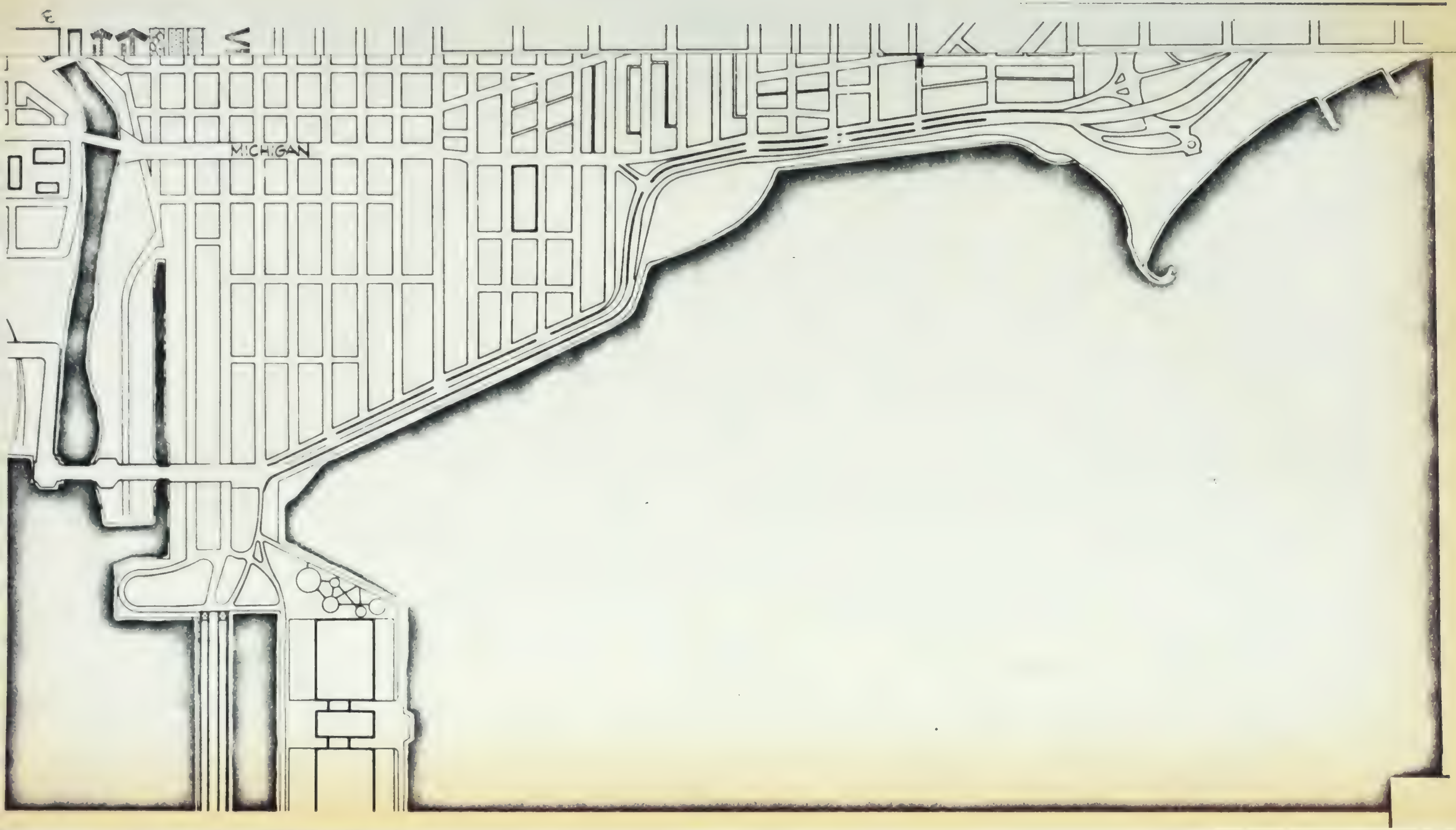
6 IMPROVED GRAPHICS
STANDARDIZED & IMPROVED GRAPHICS AND INFORMATION SYSTEM

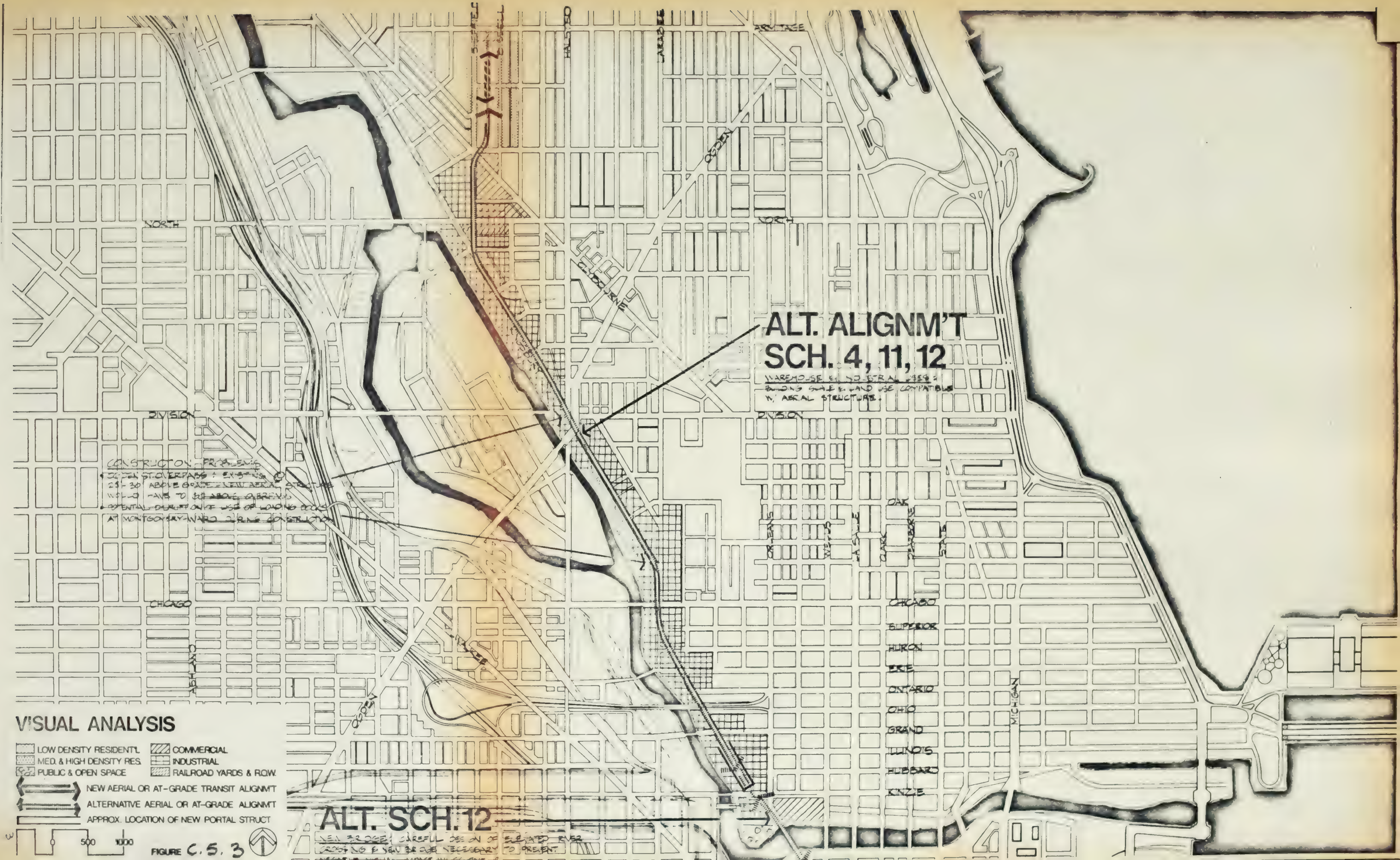
7 COMMUTER RR LINKS
PEDESTRIAN LINKS OF COMMUTER RAILROAD STATIONS TO LOOP AREA TRANSIT & NEW PEDESTRIAN SYSTEM

8 RECENT DEV'P LINKS
PEDESTRIAN LINKS OF RECENT DEVELOPMENTS BASED ON '68 '71 PLAN BUT NOT SERVED BY NEW SYSTEMS TO LOOP AREA TRANSIT

9 CULTURAL "LOOP"
IDENTIFICATION OF TRANSIT SERVICE & PEDESTRIAN SYSTEM CONNECTIONS TO CHICAGO'S MAJOR CULTURAL ATTRACTIONS

FIG. C.5. 2
URBAN DESIGN OPPORTUNITIES


MICHIGAN



VISUAL ANALYSIS

FIGURE C.5.3

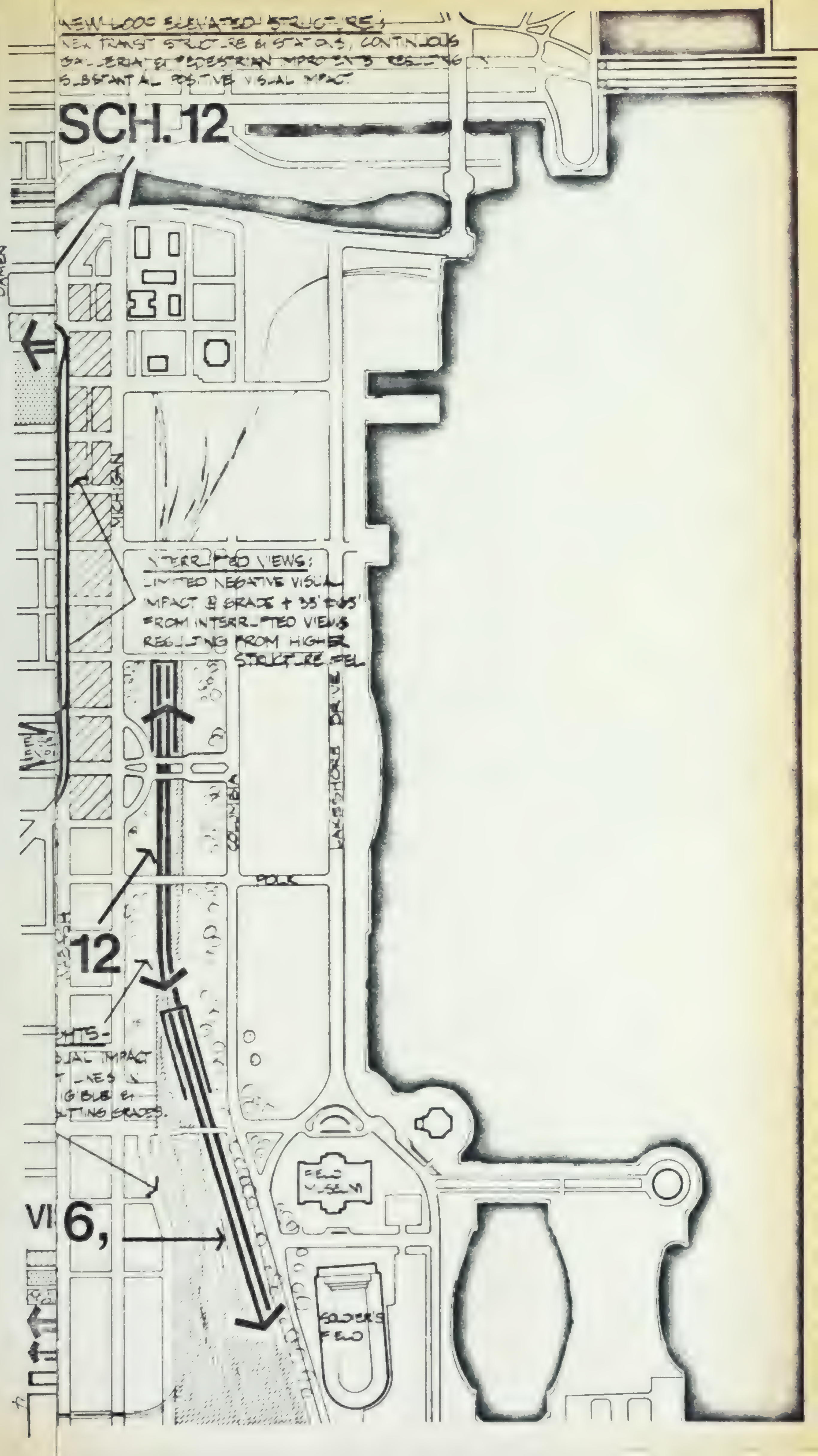
ALT. ALIGNM'T SCH. 4, 11, 12

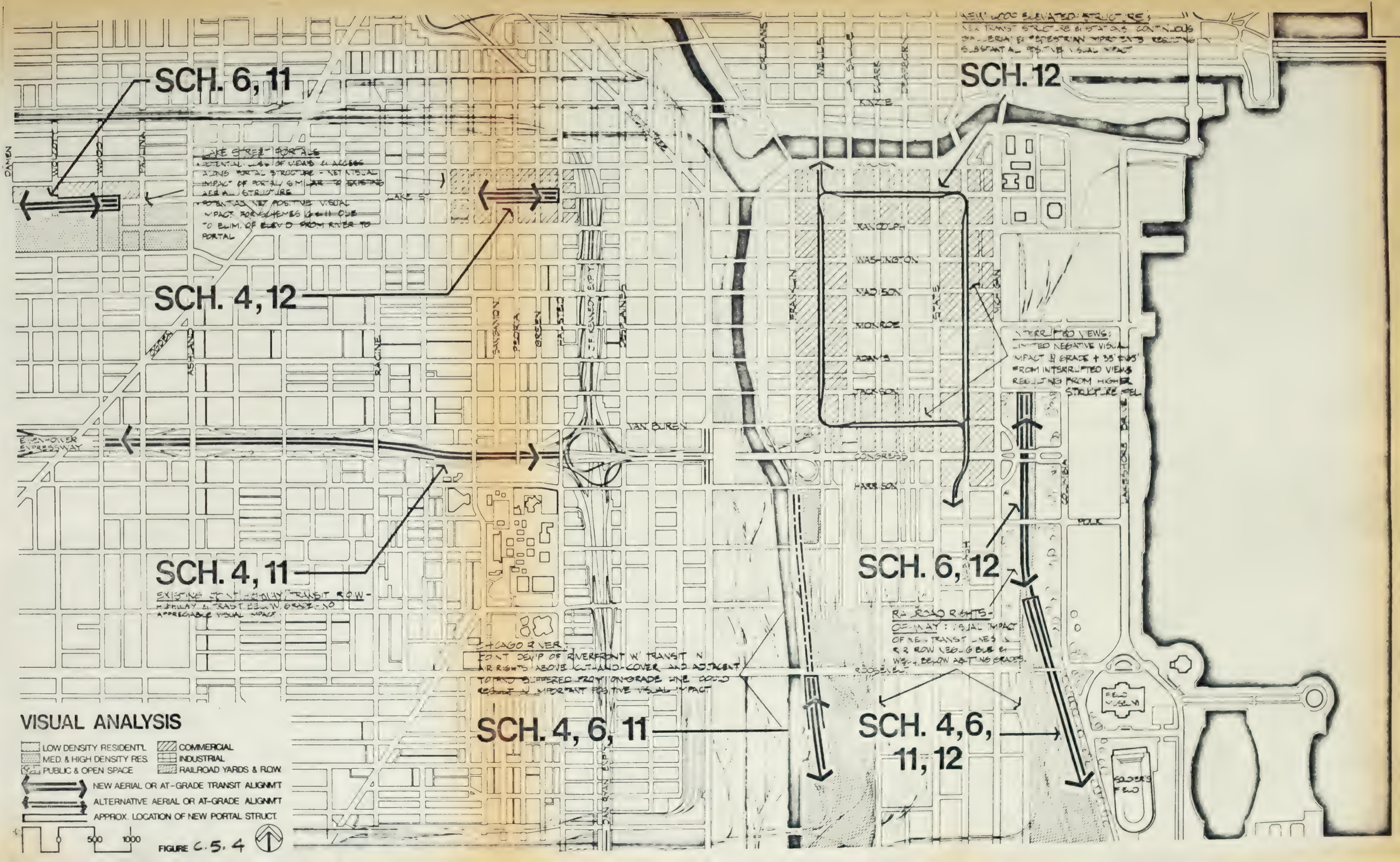
WAREHOUSE & INDUSTRIAL USES:
BUILDING SCALE & LAND USE COMPATIBLE W/ AERIAL STRUCTURE.

CONSTRUCTION PROBLEMS
- OGDEN ST. OVERPASS: EXISTING 25'-30' ABOVE GRADE. NEW AERIAL STRUCTURE WOULD HAVE TO GO ABOVE OVERPASS.
- POTENTIAL DISRUPTION OF USE OF LOADING DOCKS AT MONTGOMERY-WARD DURING CONSTRUCTION.

ALT. SCH. 12

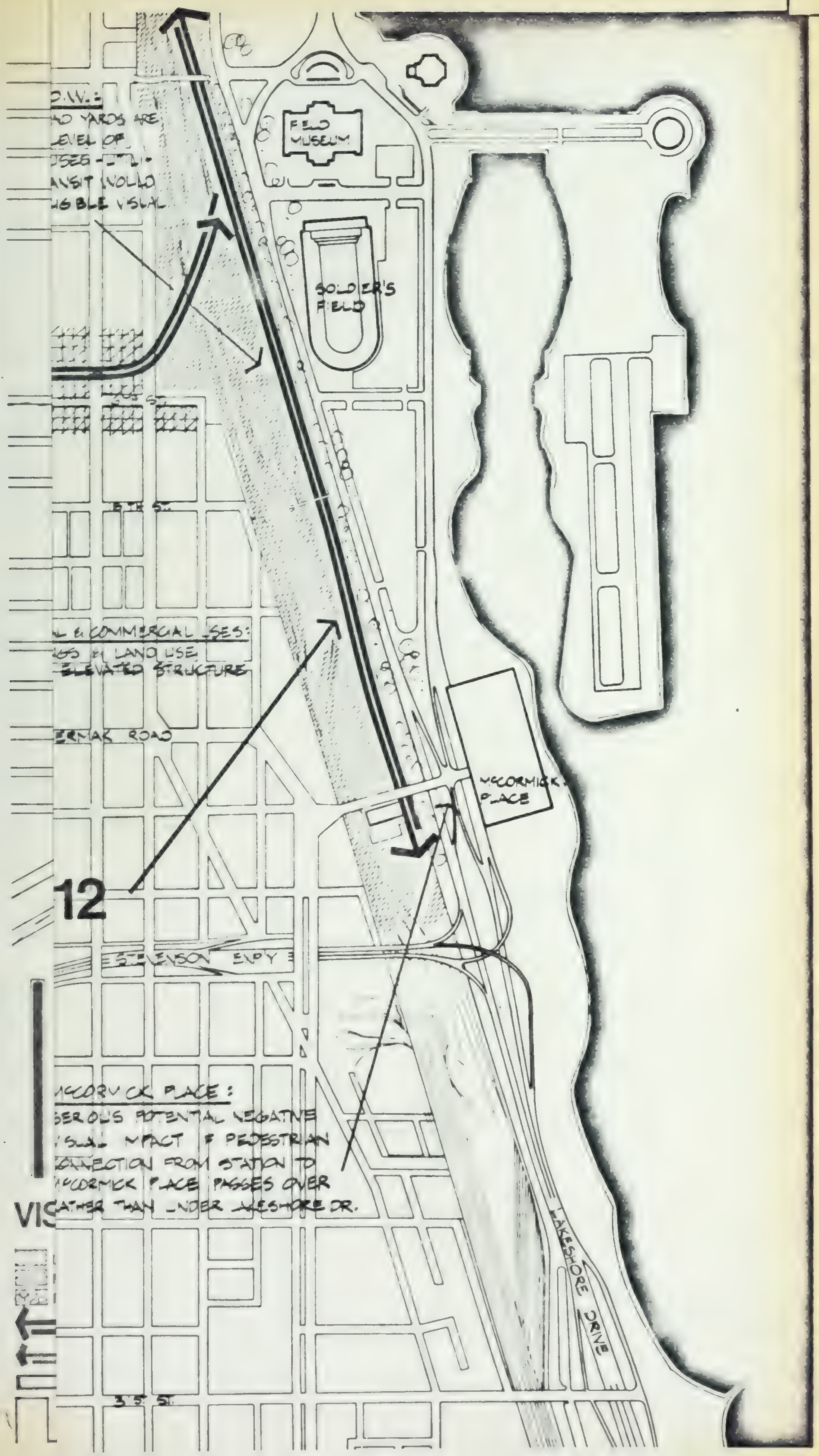
NEW BRIDGE: CAREFUL DESIGN OF ELEVATED RIVER CROSSING & NEW BRIDGE NECESSARY TO PREVENT


NEW LOOP ELEVATED STRUCTURE;
NEW TRANSIT STRUCTURE & STATIONS, CONTINUOUS
GALLERIA & PEDESTRIAN IMPROVEMENTS RESULTING IN
SUBSTANTIAL POSITIVE VISUAL IMPACT
SCH. 12
DAMEN
MICHIGAN
INTERRUPTED VIEWS;
LIMITED NEGATIVE VISUAL
IMPACT @ GRADE + 35' EYES
FROM INTERRUPTED VIEWS
RESULTING FROM HIGHER
STRUCTURE LEVEL
COLUMBIA
LAKESHORE DRIVE
POLK
12
HTS-
UAL IMPACT
T LINES
IGIBLE @
TING GRADES.
VI
6,
FIELD MUSEUM
SOLDIER'S FIELD


NEW LOOP ELEVATED STRUCTURE;
NEW TRANSIT STRUCTURE & STATIONS, CONTINUOUS GALLERIA & PEDESTRIAN IMPROVEMENTS RESULTING IN SUBSTANTIAL POSITIVE VISUAL IMPACT
SCH. 12
SCH. 6, 11
LAKE STREET PORTALS
POTENTIAL LOSS OF VIEWS & ACCESS ALONG PORTAL STRUCTURE - NET VISUAL IMPACT OF PORTAL SIMILAR TO EXISTING AERIAL STRUCTURE
POTENTIAL NET POSITIVE VISUAL IMPACT FOR SCHEMES 6 & 11 DUE TO ELIM. OF ELEV'D FROM RIVER TO PORTAL
LAKE ST
SCH. 4, 12
INTERRUPTED VIEWS;
LIMITED NEGATIVE VISUAL IMPACT IN GRADE + 35' ELEV'S FROM INTERRUPTED VIEWS RESULTING FROM HIGHER STRUCTURE LEVEL
SCH. 4, 11
EXISTING CENTRAL HIGHWAY/TRANSIT ROW-
HIGHWAY & TRANSIT BELOW GRADE - NO APPRECIABLE VISUAL IMPACT
SCH. 6, 12
RAILROAD RIGHTS-OF-WAY: VISUAL IMPACT OF NEW TRANSIT LINES IN RR ROW LESSENED BY BEING WELL BELOW ABUTTING GRADES.
CHICAGO RIVER:
JOINT DEV'P OF RIVERFRONT W/ TRANSIT IN AIR RIGHTS ABOVE CUT-AND-COVER AND ADJACENT TO AND BUFFERED FROM ON-GRADE LINE COULD RESULT IN IMPORTANT POSITIVE VISUAL IMPACT
SCH. 4, 6, 11
SCH. 4,6, 11, 12
DAMEN
WOOD
ASHLAND
OGDEN
RACINE
SANGAMON
PEORIA
GREEN
HALSTED
KENNEDY EXPY
DES PLAINES
DAN RYAN EXPY
ORLEANS
WELLS
LA SALLE
CLARK
DEARBORN
KINZIE
RANDOLPH
WASHINGTON
MADISON
MONROE
ADAMS
JACKSON
FRANKLIN
STATE
VAN BUREN
CONGRESS
HARRISON
POLK
ROOSEVELT
COLUMBUS
LAKESHORE DRIVE
EISENHOWER EXPRESSWAY
FIELD MUSEUM
SOLDIER'S FIELD
LOW DENSITY RESIDENT'L
MED. & HIGH DENSITY RES.
PUBLIC & OPEN SPACE
COMMERCIAL
INDUSTRIAL
RAILROAD YARDS & ROW.
NEW AERIAL OR AT-GRADE TRANSIT ALIGNM'T
ALTERNATIVE AERIAL OR AT-GRADE ALIGNM'T
APPROX. LOCATION OF NEW PORTAL STRUCT.
0
500
1000

VISUAL ANALYSIS

FIGURE C.5.4



O.W.:
AD YARDS ARE
LEVEL OF
JSES - ...
ANSIT WOULD
IBLE VISUAL
FIELD MUSEUM
SOLDIER'S FIELD
18TH ST.
L & COMMERCIAL USES:
GS & LAND USE
ELEVATED STRUCTURE
ERMAK ROAD
McCORMICK PLACE
12
STEVENSON EXPY
McCORMICK PLACE:
SEROUS POTENTIAL NEGATIVE
VISUAL IMPACT IF PEDESTRIAN
CONNECTION FROM STATION TO
McCORMICK PLACE PASSES OVER
RATHER THAN UNDER LAKESHORE DR.
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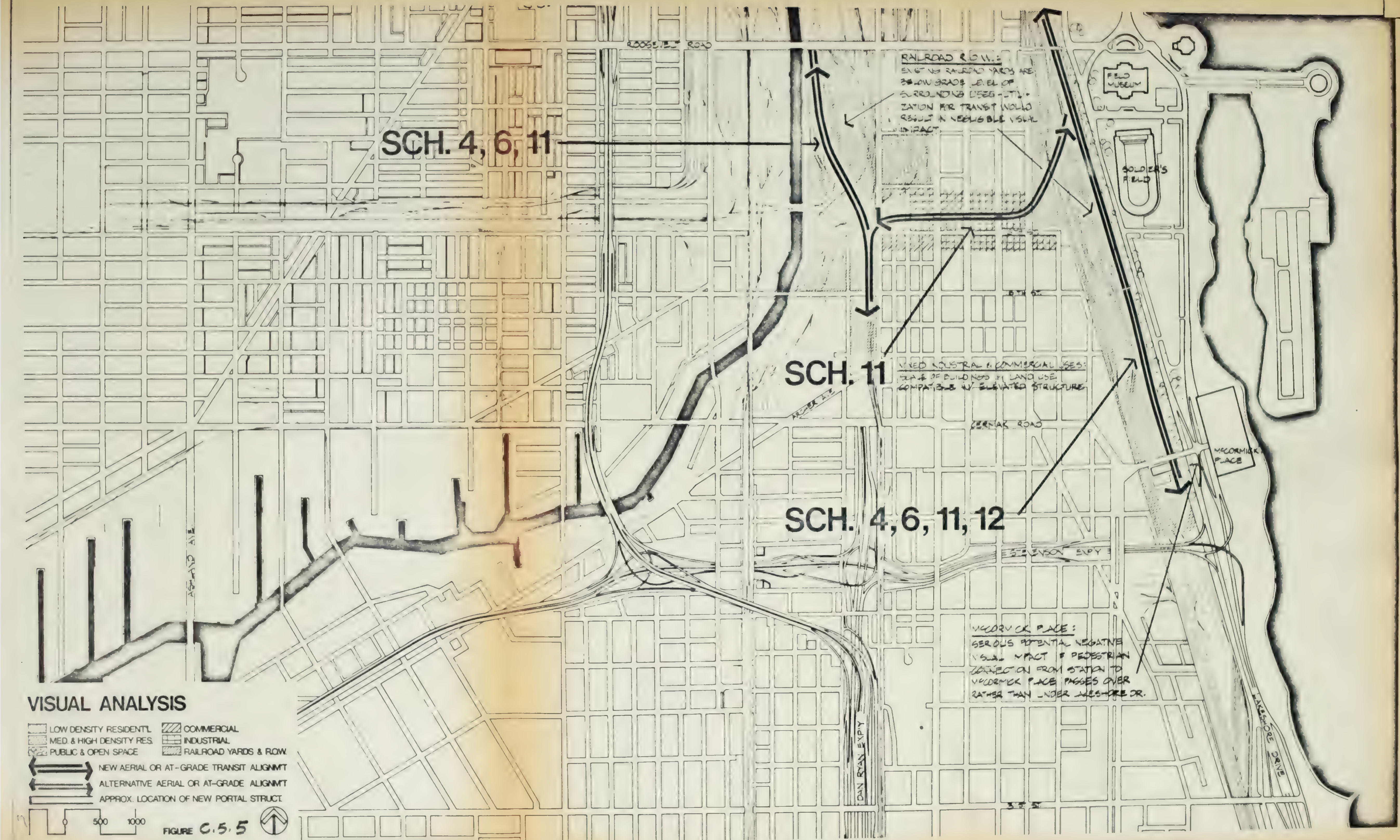


RAILROAD R.O.W.:
EXISTING RAILROAD YARDS ARE BELOW GRADE LEVEL OF SURROUNDING USES - UTILIZATION FOR TRANSIT WOULD RESULT IN NEGLIGIBLE VISUAL IMPACT.

MIXED INDUSTRIAL & COMMERCIAL USES:
SCALE OF BUILDINGS & LAND USE COMPATIBLE W/ ELEVATED STRUCTURE.

McCORMICK PLACE:
SERIOUS POTENTIAL NEGATIVE VISUAL IMPACT IF PEDESTRIAN CONNECTION FROM STATION TO McCORMICK PLACE PASSES OVER RATHER THAN UNDER LAKESHORE DR.

VISUAL ANALYSIS

FIGURE C.5.5

D. Historical Impact

The specific criteria used to evaluate the impact of various alternative alignments upon areas and individual structures of historical interest within the CCATP boundaries are as follows:

1. Physical alteration-demonstrable structural damage to buildings or foundations due to transit construction.
2. Non-conformity-intrusion of elements out of character or scale with the existing physical environment.
3. Physical separation - separation of parts of a valued area by the transit project.
4. Disruption of access-permanent severance or temporary disruption of access to a valued area.
5. Disruption of ambient environment-impairment of ambient conditions such as vibration, heat, or air quality which promote deterioration of historical sites.

The loop area of Chicago possesses many buildings of historical and architectural value: This section with its accompanying map, identifies structures as they occur along the rights-of-way affected by the Chicago Central Area Transportation Study. Structures affected by the transit project outside of the loop area are also listed.

Subway transit lines constructed in the streets of the loop will abut the structures listed, but will not affect them directly except in the case of the Marshall Field and Company Department Store, where 16 columns of the existing building must be permanently underpinned. The structure , designed by Daniel H. Burnham, occupies the entire block bordered by State, Wabash, Randolph and Washington Streets.

The construction of an alternative aerial line will make use of the existing loop transit right-of-way; structures listed as occurring on Wabash, Lake, Wells, and Van Buren Streets will be impacted visually by transit facilities. The combination of two concepts - that of converting streets to pedestrian traffic and using the track structures above as supports for a glazed galleria roof - will result in a juxtaposition that will compliment historical sites and have no adverse effect.

The following information is compiled from the Illinois Historic Structures Survey, October 1972 Edition, and from the National Register as of October 1972. Type, original designation, architect, and date of construction are shown if information is available. Buildings designated with an asterisk are classified by the Illinois Survey as being of special significance.

Demolition design and construction techniques involved in the development of new transit lines will be chosen to insure the integrity of all structures involved in the recommended right-of-way, so that Criteria #1 above will be satisfied in all cases. Measures to insure structural integrity have not yet been identified for individual structures listed below.

Adherence to Criteria #2 will be insured by proper care in the application of architectural criteria developed for the project. These recommend proper attention to the architecture of structures impacted by transit construction.

None of the structures listed are physically separated by transit construction so that Criteria #3 is respected.

No permanent severance of access to any historical site is contemplated. Temporary disruption will be minimized, and interim measures will be taken to assure access to buildings during construction.

All buildings along the proposed right-of-way will be subject to temporary impairment of ambient conditions as described by Criteria #5: During construction of transit facilities measures will be taken to minimize such disruption. Permanent alteration of the ambient environment due to factors such as increased vibration caused by train movement will be minimized by adherence to criteria for the design of subway structures.

Franklin Street

1. Commercial Building, 130 North Franklin Street
2. Commercial Building, 320 South Franklin Street
3. Commercial (Brooks Building), 223 W. Jackson Street (corner Jackson and Franklin Streets): Holabird and Roche, 1910.

Wells Street

1. Commercial Building, 200 West Adams Street (corner Wells and Adams Streets).
2. Commercial Building, 201 West Madison Street (corner Wells and Madison Streets).
3. Commercial Building, 36-42 North Wells Street
4. Commercial Building, 116 South Wells Street

Wabash Avenue

1. Commercial(Mandell Brothers Building), 1 North State Street-Holabird & Roche. *
2. Commercial Building, 137-139 North Wabash Avenue
3. Commercial Building (Field Annex) northwest corner, Wabash and Washington Street; D.H. Burnham & Company. *
4. Commercial (Charles A. Stevens Building), 22 North Wabash
5. Commercial (Silversmith Building), 10-16 South Wabash: D.H. Burnham and Company, 1897.
6. Commercial (Original Schlesinger and Meyer Building), 18 South Wabash: Louis Sullivan. *

7. Commercial (Jewelers Building), 19 South Wabash: Adler and Sullivan, 1882*

8. Commercial Building, 28 South Wabash.

9. Commercial (Champlain #2 Building), 37 South Wabash: Holabird and Roche, 1903*

10. Commercial Building, 209 South Wabash.

11. Commercial (Starck Building), 234 South Wabash: Graven and Mayger, 1927.

13. Commercial (Wirt-Dexter Building), 630 South Wabash: Adler & Sullivan, 1887.

14. Commercial (Ludington Building), 1104 South Wabash: William LeBaron Jennet.

15. Commercial Building, 1110 South Wabash.

Michigan Avenue

1. Commercial (Monroe Building) 104 South Michigan Avenue: Holabird and Roche, 1912*

2. Museum (Art Institute of Chicago) opposite corner of Michigan and Adam Streets: Shepley, Rutan, and Coolidge, 1892*

3. University Club, northwest corner, Michigan Avenue and Monroe Street: Holabird and Roche, 1909.

4. Municipal Waterworks, Northeast corner of Chicago and Michigan Avenues: W. W. Boyington *

5. Water Tower, Chicago and Michigan Avenue: W. W. Boyington

Rush Street

1. Memorial Church (Quigley Seminary), 103 East Chestnut *

Fairbanks Court

1. Commercial (S.R.A. Building), 259 E. Erie Street

Lake Street

1. Commercial Building, 209 West Lake Street
2. Commercial Building, 130 West Lake Street. *
3. Utility Building (Edison Power Station), 10 East Lake Street.
4. Commercial Building, 236 West Lake Street.

Randolph Street

1. Commercial (Delaware Building), northeast corner Dearborn and Randolph Streets: Wheelock and Thomas, 1894. *

Monroe Street

1. Commercial (Northern Trust Company), northwest corner LaSalle and Monroe Streets: Frost and Granger.

Van Buren Street

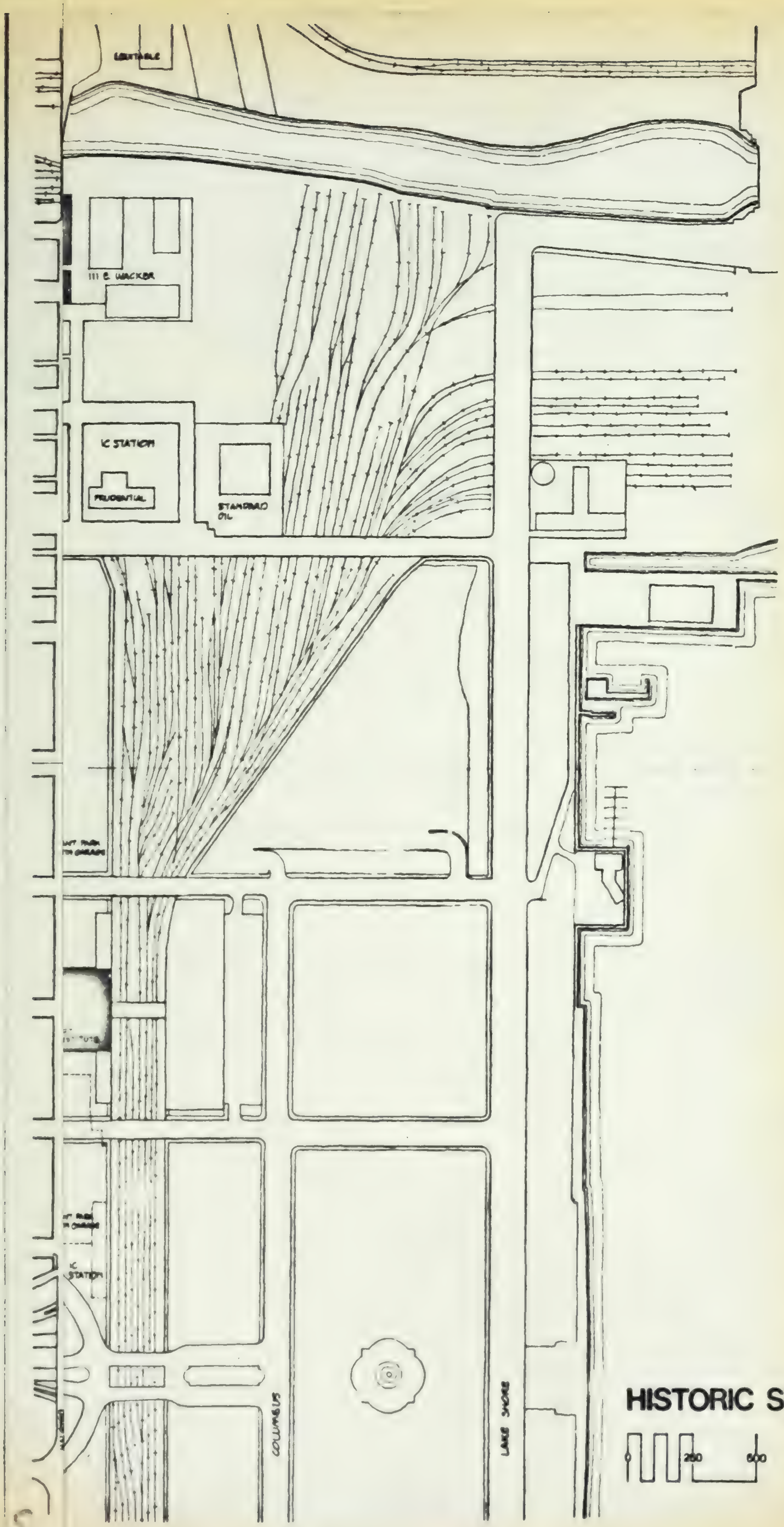
1. Commercial (Fisher Building), 337-347 South Dearborn: D.H. Burnham and Company, 1897.
2. Commercial Building (Monadnock-South Building), 53 West Jackson: Holabird and Roche, 1892.
3. Commercial Building (Monadnock-North Building), 53 West Jackson: Burnham and Root, 1889.

4. Commercial (Old Colony Building), 406 South Plymouth Court: Holabird and Roche, 1894.

5. Commercial (Leiter II Building), southeast corner Van Buren and State Streets: William DeBaron Jenny, 1889*

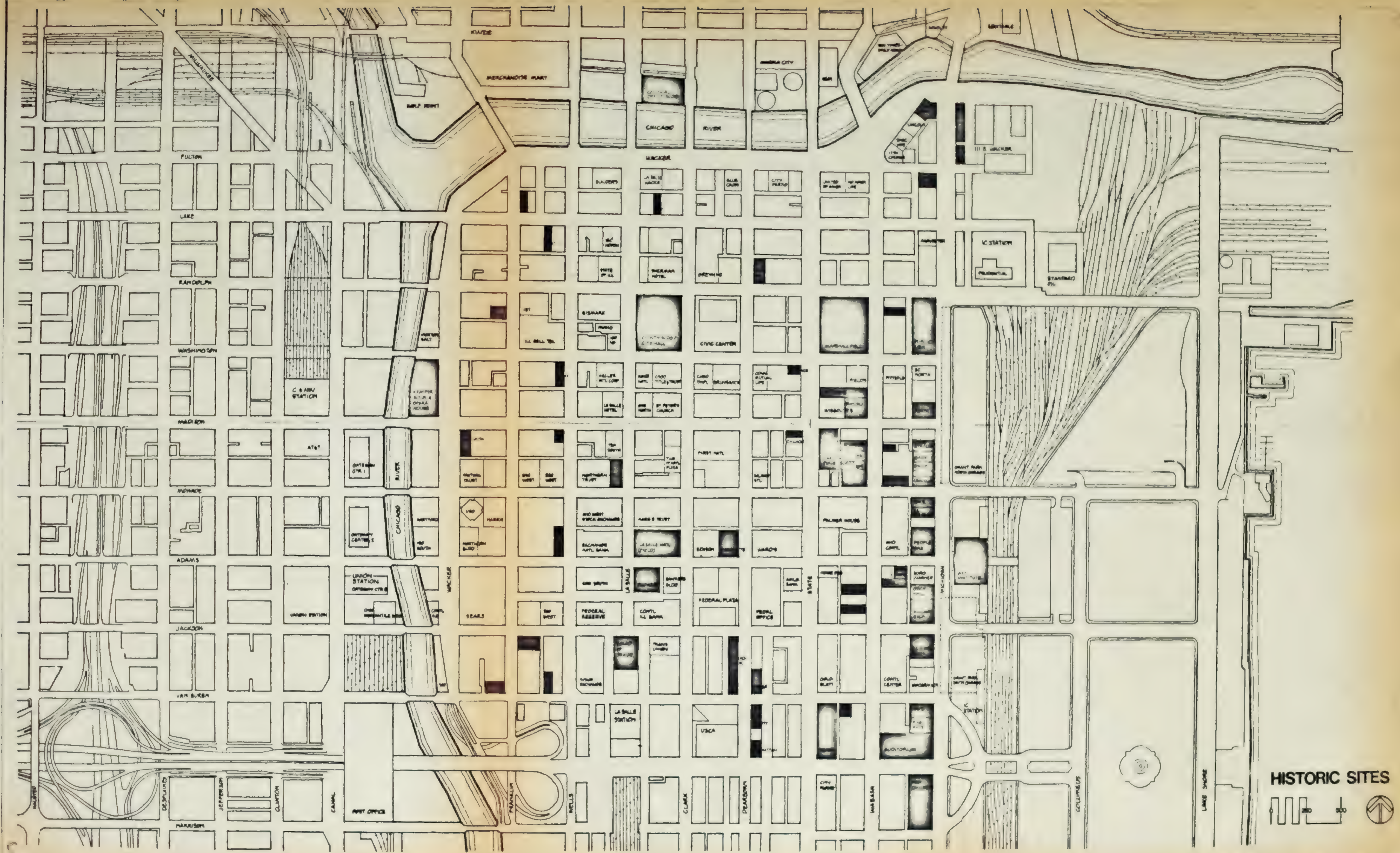
6. Commercial (Isabella Building), 21 East Van Buren Street: Jenney and Mundie, 1892.

7. Commercial (Van Buren Building) , 210 West Van Buren Street, 1893.



HISTORIC SITES

HISTORIC SITES



E. ECONOMIC IMPACTS

The following impacts of the proposed projects are discussed under the following categories:

1- Land Use and Development
2- Fiscal Impacts
3- Regional Development
4- Economic Dislocation
5- Transportation Systems
6- Service to Transit Dependent Groups

1. Land Use & Development

Introduction

The evaluation of the land use impacts of the alternative transportation improvements now being considered by CUTD District involved;

- an analysis of the prevailing Central Area land use market conditions;
- the forecast of the regional growth potential of the Chicago Metropolitan Area;
- an interpretation of the private sector decisionmakers' attitudes towards alternative structural forms and transportation system alignments;
- a review of the historical land use impacts of major improvements in the Central Area transportation of other major cities throughout North America.

The results of this comprehensive evaluation program are discussed in the following sections of this report.

a. Existing Market Conditions

The land uses that are most directly influenced 1/ by fixed guideway transportation improvements are;

a) commercial office

b) high rise residential;

c) hotels;

d) pedestrian retail

1/ See documented case studies of the land use impact of new North American rapid transit systems completed for the Delaware River Port Authority by Development Research Associates.

An induced shift in the location of regional office development has a major secondary impact on both high rise residential and pedestrian retail demand. In the case of Central Business District development, the prevailing commercial office market conditions shape the general short term investment outlook of the private sector. Therefore, this land use was analyzed in greater detail during this study program.

(i) Commercial Office

The Central Area of Chicago has recently experienced a major boom in commercial office construction. During the 1960's this sub-area absorbed approximately ten million square feet of new office space. On a regional basis this growth represented nearly 63% of the total commercial office development in the Chicago Metropolitan Region.

Recent Trends

The recent pace of commercial office construction (1970-73) within the Central Area has exceeded new short term demand requirements. The overall occupancy rates of office facilities located in downtown Chicago has declined from 96.4% in 1970 to 87% in October 1973. Due to the scale of committed projects now under construction[2/] this Central Area occupancy rate is expected to decline to approximately 83% by 1975 before recovering to a normal rate of 90%+.

3/ The relationship between annual office space construction and prevailing occupancy rates in the commercial office facilities located within the Central Area of Chicago is illustrated in Figure IV-1 shown on the following page.

Critical Market Factors

The critical market factors that are affecting commercial office development in the Chicago Central Area are:

- the prestige building phenomenon
- the lease structure- occupancy level construction cycle
- the competitiveness of suburban office centers

Each of these factors is discussed in detail below.

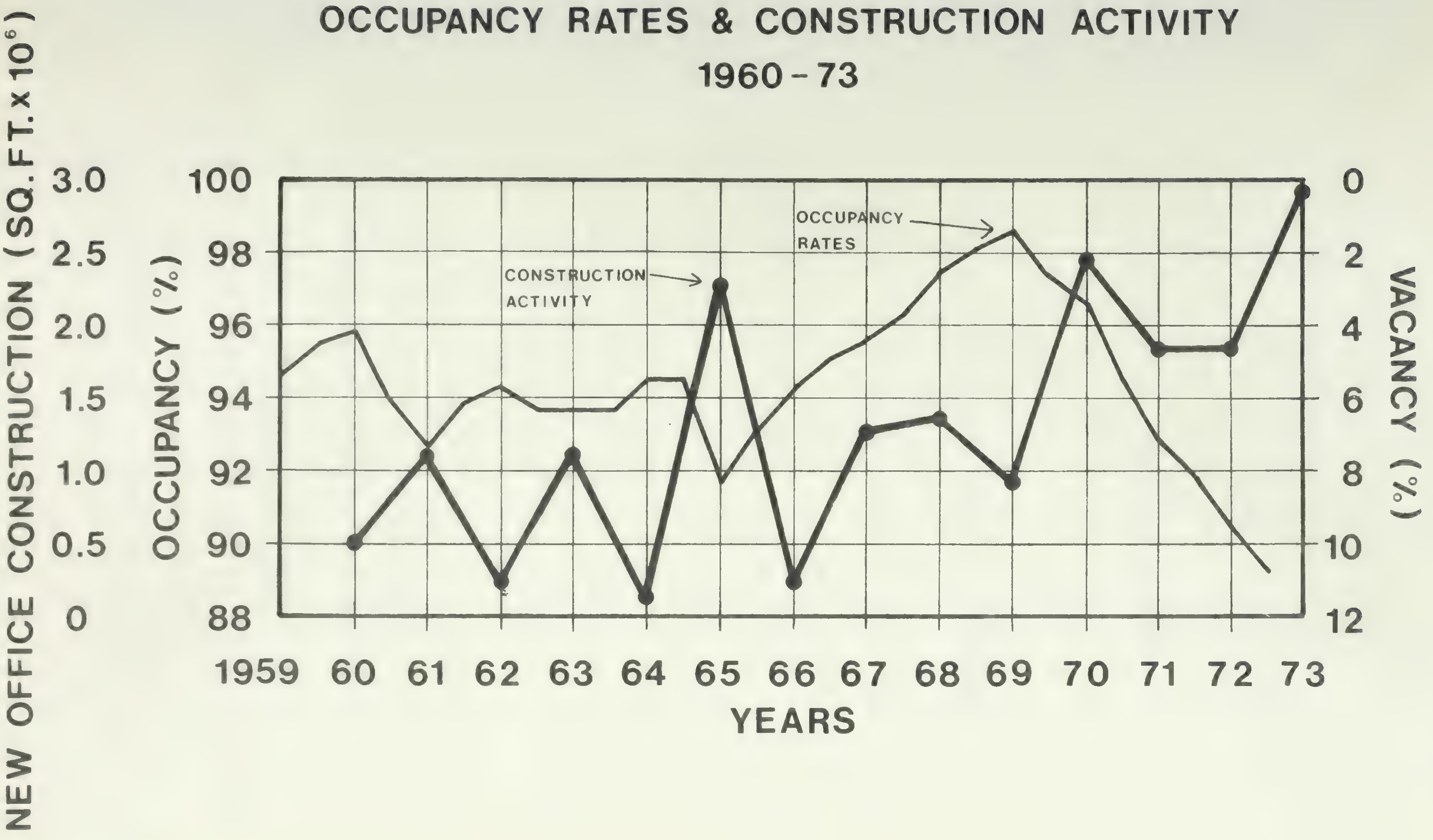
Prestige Building Phenomenon

The construction of the John Hancock Center, Standard Oil building, and Sears Tower have greatly enhanced the market image of the Central Area of Chicago. Many leaders of the private sector believe these projects are the advent of a new era of national prominence for the city of Chicago. The major committment of these three

2/ Current committed office development projects represent approximately 5.2 million square feet.

3/ This occupancy rate is considered the break even feasibility point for new office buildings.

FIGURE IV.1
OCCUPANCY RATES & CONSTRUCTION ACTIVITY
1960 - 73



national corporations to the Central Area is viewed as being a catalyst to attracting other large corporate centers to the region. This potential could be reinforced by other major public and private development committments to the city of Chicago. In economic terms, a major market momentum has been initiated. The development events of the next few years are very critical to the city's capability to maintain this momentum.

The Lease Structure-Occupancy Level Construction Cycle

Historically, Chicago's Central Area has maintained an average commercial office space occupancy of 94%. Furthermore most of this area's construction activity has been developed for committed tenants rather than on a speculative basis. Therefore, the office space market was dominated by supply rather than by demand factors. This situation gave rise to a high appreciation in lease rates during the late 1960's and early 1970's.

This lease rate appreciation was brought about by a very tight market situation which was created in the late 1960's when commercial office occupancy rates climbed to 98%+. At this point, major construction activity was undertaken predicated upon increasing demand, the announcement of new transportation system plans and other factors which included the prestige building phenomenon.

The unusually large amount of office space supply that was added to the market between 1968-71 , about five million square feet out-paced the demand. As a result, occupancy rates began to decline steadily to the 87% level prevalent during 1973. These market events have affected the financial feasibility of recently committed or planned office space development projects.

Under the present market situation, existing or future office developments will require a longer operating period to financially break even. Subsequently these projects will require longer term capital committments. Owners of existing structures are lowering lease rates to minimize short term losses. Such lower (unpublished) lease rates makes the Central Area office space more competitive with suburban office location. This short term market strategy may curtail the outflow of existing tenants to these suburban centers. Eventually this strategy combined with other market trends may even reverse the trend.

Competitiveness of Suburban Office Centers

The new suburban office centers, e.g. Oak Brook, O'Hare and Park Ridge, built during the 1960's attracted a large portion of their tenants away from the Chicago Central Business District. These centers are now experiencing their own accessibility and traffic circulation problems. In addition,

many firms now located in suburban office centers (e.g. Varho, Inc., Oak Industries, United Airlines and Planning Research, Inc.) have had increasing difficulties attracting sufficient quality staffs. Due to these factors, the competitiveness of these suburban office centers vis-a-vis the Central Area of Chicago has markedly declined. This is evidenced by the historical office tenant relocation analysis shown in Table IV.1 .

The high commercial property tax now levied at approximately $1.80 per square foot on office facilities located in the City of Chicago is the major competitive disadvantage of the Central Area. The relative tax level differences between suburban communities and the City of Chicago is narrowing but will not become competitive in the next few years. Overall, the regional commercial office market is trending toward stabilization for the next few years. Major transportation facility and local tax levy decisions will undoubtedly exert a major influence on future private sector commercial office development investment plans.

(ii) High Rise Residential

Since 1960, 10,034 high rise residential units have been constructed in the Central Area of Chicago. The largest portion 90% of these units are located in the Northern Michigan Avenue and downtown sections of Chicago.

TABLE IV. 1
OFFICE SPACE OCCUPANCY CHANGES
COMPOSITION * (Sq. Ft.)
CHICAGO'S LOOP AREA

	New Tenants	City Change	Area Change **	CBD Move	Expan -sion	Total Change
	310,147	1,026	-237,439	-179,260	390,922	343,118
	187,454	-194,784	-232,381	1,454,846	338,901	1,554,036
	8,634	- 11,545	-201,965	385,023	659,338	839,535
	232,175	4,904	-134,955	2,198,639	330,186	2,630,948
	388,785	188	19,623	112,684	706,064	1,227,317
	343,541	89,805	- 93,257	541,426	591,930	1,483,445
	351,622	29,210	- 86,670	529,010	828,457	1,651,647
	317,759	-68,226	- 118,440	-268,093	639,552	502,552
	11,678	-51,044	- 51,743	-144,051	507,851	272,691
	111,164	-23,289	- 97,572	-277,088	392,536	69,484
	115,725	-67,531	- 6,560	216,383	350,761	608,778
	193,290	-87,355	35,115	318,003	311,256	772,310
	121,898	-55,447	- 336,096	-198,299	445,978	- 21,966
	2,693,872	-434,088	-1,542,330	5,047,742	6,493,732	11,936,495
.	207,221	- 33,391	- 118,641	388,288	499,517	918,192

le: Building Owners & Managers Association

us sign denotes a net outflow of tenants measured by sq. ft. of office space affected.

Recent Trends

The annual construction activity in the high rise residential market has dramatically declined since 1970. The cyclical construction trends of this market during the 1960-1973 time period have varied from approximately 350 units to 1600 units.

Critical Market Factors

High rise residential development has been seriously hampered by recent upward reappraisals of residential property values within and adjacent to the Central Area of Chicago. Annually, more high rise residential structures are being converted to condominiums than were built at the peak construction year of 1963. The increased incidence and publicity of street crime has also hampered inner city residential marketing programs.

The primary attraction of inner city residential living is minimum commuting distance to work in downtown Chicago and more full participation in the cultural, social and recreational opportunities of the Central City. Improvements to the Central Area circulation system would greatly enhance

the desirability of this life style. The feasibility of any major residential project now contemplated to be built near the Central Area (e.g. Outer Drive East and 400 E. Randolph) will depend strongly on public transportation improvements and continued expansion of the Central Area employment base.

(iii) Retail Sales

During the last decade the growth in commercial retail sales in the Central Area of Chicago has been nearly stagnant. Department store sales for example have maintained nearly a constant annual volume of $330 million. The actual number of specialized retail services (e.g. barber shops, tailors and fabric shops) has actually declined within the loop core area. This is also the situation for eating and drinking and jewelry establishments.

North Michigan and State Street have remained vital pedestrian retail centers. State Street has become an ethnic retail center while North Michigan has remained a prestige, luxury product line shopping area.

Recent Trends

The rapid growth of suburban shopping centers during the 1960's has dramatically changed shopping patterns away from most central cities. This national phenomenon, as experienced in the Chicago Metropolitan Area and the

Central Area fared better than most other Central City communities around the country. Table IV-2 shows the annual regional retail sales captured by the Central Area in recent years. It is evident from this table that while the basis sales volume has remained about the same over the indicated six years period, the capture rate of the Central Area has drastically declined.

Critical Market Factors

Two events, the development of the Hancock shopping center and the reconstruction of McCormick Place will exert a positive influence on retail sales trends in the Central Area. Already the availability of McCormick Place has doubled retail sales trade by convention delegates visiting Chicago. The long term impact of these new facilities as well as the continuing vitality of the existing retail and professional service facilities located in the Central Area of Chicago will be greatly influenced by future transportation improvements to this area.

(iv) Hotel

Chicago is one of the largest convention centers of North America. Combined with the large business visitor trade, Chicago enjoys one of the nation's strongest hotel markets. Due to the location of McCormick Place and the announcement of the Distributor transportation plan, nearly two thirds of the new quality hotels have located in the North Michigan Area.

TABLE IV. 2
REGIONAL RETAIL SALES CAPTURE

DEPARTMENT STORE SALES*	1967	1968	1969	1970	1971	1972
Central Business District	330	331	344	333	328	331
Percent of SMSA	22.60%	20.73%	19.87%	18.62%	17.11%	15.77%
Other City	425	412	440	443	468	503
Percent of SMSA	29.10%	25.81%	25.41%	24.77%	24.41%	23.97%
Suburban SMSA	705	853	947	1,012	1,121	1,264
Percent of SMSA	48.28%	53.44%	54.70%	56.59%	58.47%	60.24%
Total	1,460	1,596	1,731	1,788	1,917	2,098
Percent of All Retail Stores	12.08%	11.97%	12.51%	12.28%	11.75%	12.21%
All Retail Stores	12,086	13,326	13,833	14,555	16,302	117,171

Source: U.S. Department of Commerce, Monthly Report
Institute of Transportation & Regional Planning

* All sales in million U.S. $.

Table in Appendix indicates the location, room capacity and minimum daily rates of the hotels now located in the Central Area of Chicago.

Recent Trends

The events of the 1968 Democratic Convention adversely affected the convention market of Chicago. The actual number of conventions dropped by 1971 by nearly 35%. With the reopening of McCormick Place in 1972 the convention market recovered to approximately 90% of the 1968 high of 1,073 conventions. In addition to the 20% increase in the number of conventions over the previous year there was also a sharp increase in the number of delegates per convention. These trends in Chicago convention market are shown in Table IV.3.

Critical Market Factors

Encouraged by the convention attendance level of 2.4 million delegates during 1972, local hotel officials are forecasting a record 3.0 million delegates during 1973. This market condition is stimulating additional hotel construction activity. Those hotel development projects presently (see Table IV.4) committed or under construction will add an additional 4500-5000 first class hotel rooms to the existing capacity of the Central Area of Chicago. When completed these hotels represent nearly a 25% increase in the existing hotel room

TABLE IV. 3

HOTEL ROOM AVAILABILITY & CONVENTION DEMAND

Year	Number of Conventions	Attendance (thousands)	Average No. of Delegates Per Convention	Delegates Room Req. Per Year (thousands) (1)	Average No. of Rooms Available	Annual Room Days Available (millions) (2)	Percentage of Delegate Req. Rooms
1948	1056	860	814	1720	14600	5329	32.27
1954	1076	1045	971	2090	15000	5475	38.17
1958	1071	1080	1008	2160	15100	5511	39.19
1963	1022	1320	1292	2640	17210	6281	42.03
1968	1073	1497	1395	2994	18430	6726	44.51
1969	827	1314	1588	2628	18630	6799	38.65
1970	785	1557	1983	3114	18800	6862	45.38
1971	673	1308	1943	2616	18900	6898	37.92
1972	900	2400	2666	4800	19073	6961	68.95
		Proposed Additional Capacity		Low	4450	1628	
				High	4950	1788	

(1) Assume each delegate will spend two nights per convention.
(2) Average number of rooms available x 365.

Source: Chicago Convention Bureau, Greater Chicago Hotel and Motel Association

TABLE IV. 4

MAJOR HOTELS PROPOSED OR UNDER CONSTRUCTION IN DOWNTOWN CHICAGO

HOTEL NAME	ADDRESS	YEAR OF COMPLETION	NO. OF ROOMS
Continental Plaza (Addition)	909 N. Michigan	1974	500
Hyatt Regency	East Wacker	1974	1,000
Ritz Carlton	850 N. Michigan	1975	450
Unnamed	Merchandise Mart Area	NA	500
Unnamed	900 N. Michigan Area	NA	500-800
Unnamed	500 N. Michigan Area	NA	1,000-2000
Mid-American	Clark & Randolph	1975	500

supply.

In addition to the high level of current construction activity, the recent commercial office boom and the announced Central Area Distributor system plans are the other critical factors affecting this market.

As the number of regional headquarter offices increase in the Central Area, business visitors would also increase. The implementation of the Distributor subway would greatly enhance the utilization of McCormick Place and the attendance by delegates and businessmen to other places of interest in the Central Area.

b. Central Area Development Outlook

In evaluating the development outlook of the Central Area the study team took into account both the regional growth potential of the Chicago Metropolitan region as well as the existing market conditions. The first step in this analysis was to establish the overall growth parameters of the Central Area. This approach involved forecasting the minimum and maximum growth that was likely to occur during the next three decades. Under the minimum growth condition the implicit assumption was that no major change in the existing Central Area transportation system will take place (the do nothing alternative). Under the maximum growth condition it was assumed that there would be maximum improvements to the Central Area transportation system and strong positive steps towards

coordinating and creating incentives for Central Area development.

It is critical to note that a negative decision towards future Central Area transportation system improvements would greatly diminish the existing momentum towards incremental CBD development plans. The private sector views the current transportation improvement plan as a basic re-committment of the City of Chicago to the continued revitalization of the core area of the city.[5/] The announcement of this plan in 1968 has already exerted a strong positive influence on the committment and location of regional major private development projects (e.g. Sears, CNA Center and Mid-Continental Plaza).

Fig. IV.2 shows the results of our minimum, mid-range, and maximum forecast of Central Area's commercial office occupancy potential. Using the occupancy rate and different demand levels, cumulative commercial office construction was estimated through the year 1990 (See Table IV.5). Based on this analysis we forecasted a range forecast for future employment growth in both the Central Area and the Loop Area. These forecasts are presented in the Interim Report along with the corresponding regional employment forecasts.

This background analysis formulated the market demand input used to predict the land use impact of each of the Central Area transportation alternatives under consideration. As a second major input barometer we also examined the physical land use

5/ This fact was documented by ITRP's interviews with Fred Windchey, Fred Windchey Ass.; Elayne Kilgore, BMA; Richard M. Palmer, BMA

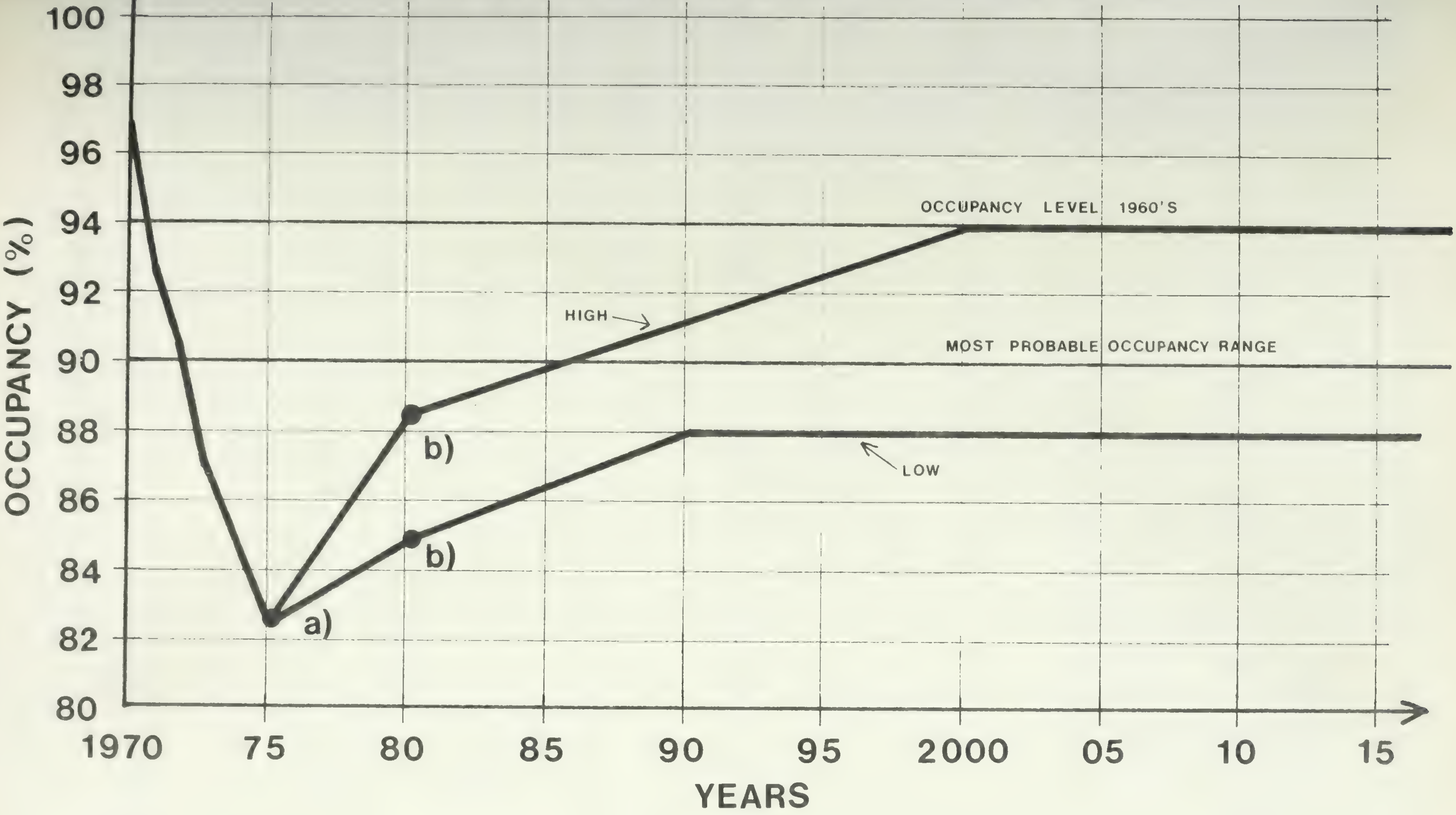
TABLE IV. 5 OFFICE SPACE CONSTRUCTION ESTIMATES

Absorption Rate per Year	Cumulative Construction (Sq. Ft. $* 10^6$) 1975	1980	1985	1990
High 1.5 million sq. ft.	3.448 *	12.513	21.338	30.298
Medium 1.3 million sq. ft.	2.988 *	10.843	18.403	25.788
Low 1.0 million sq. ft.	2.298*	8.338	13.988	19.543

NOTE: Committed construction up to 1975 amounts to approximately 5.2 million sq. ft. which exceeds short term projection. However, it is anticipated that by 1980 drop in construction activity will compensate for over construction.

* Represents new construction for two year period only.

FIG. IV.2 FORECASTED OCCUPANCY RATES



a) REFLECTS EXISTING CONSTRUCTION ACTIVITY

b) REFLECTS THE POSSIBILITY OF ADDING 1.5 – 2 MILLION SQ. FT.

supply condition of the Central Area of Chicago.

Based on existing 1973 land values, structural building conditions and recent development activity, ITRP analyzed the redevelopment potential of each city block in the study area. The results of this evaluation are present in Figure IV.3. This physical supply input greatly assisted our sub-area development impact analysis of the transportation alternatives.

c. Development Impact Evaluation

Based upon existing market conditions analysis which included recent trend review along with identification of critical market factors and Central Area development outlook impact evaluation was made for the proposed system. This evaluation is presented below:

Development Outlook

The implementation of the subway loop and Distributor alternative would allow the Central Area of Chicago to achieve its maximum development potential. The strongest positive influence would be exerted on the commercial office development market. The hotel market would also be enhanced. Large scale residential development South and West of the Central Area would receive the maximum support from improved public transportation.

Development Cycle

In the short term (1975-1980) the proposed system will induce 7.3 million square feet of incremental commercial office

construction in the Central Area. Positive decisions towards large scale residential development adjacent to the Central Area will be supported. A strong development incentive will also be provided to continued expansion of the existing hotel facility supply.

In the long term (1980-1990) the average annual office absorption will reach 1.5 million square feet annually or approximately 50% higher than that experienced by the Central Area during the 1960's. Incremental hotel development activity will occur at between 350-400 rooms annually. In addition, one million square feet of retail development will be added to the Central Area.

Cumulative Development Impact

The cumulative 1990 development impacts of the subway loop and Distributor alternative are summarized in Table IV.6). The incremental Central Area employment growth that would result from this scale of development would be approximately 176,000 .

Nearly 125,000 or 70% of this induced incremental employment growth would take place in the Loop Area.

Table IV.6
Cumulative 1990 Development Impact
of the Proposed System

Commercial Office (million sq. ft.)	Hotel (rooms)	Residential (units)	Retail Space (million sq. ft.)
25.1	10,000	25,000	1.0

Source: Institute of Transportation and Regional Planning

2. Fiscal Impact

The objective of this analysis is to prepare rough estimates of the fiscal impacts of the implementation of different transit improvement options. Although data is available for more sophisticated analysis, time constraints and consistancy with previous studies necessitate using the gross estimate methodology reported herein. The fiscal impact is broadly classified into two major categories; (a) Increase in land value and (b) Increase in value of improvements. These categories are discussed below:

a. Increase in land value

The cycle of development leading to increase in land value "with" or "without" transit improvements can be explained as follows. In general, new construction activity requires land use change or upgrading which raises land value in the high demand areas such as loop core area. For example, blocks located within the core area and one block or more away from the loop have land prices which range from $200 - $300 per sq. ft. Land values decline rapidly as one proceeds away from the loop. However, the upgraded Michigan corridor land area, commands nearly 50% higher prices as compared to the Wells and Franklin Street corridor. This land value appreciation is primarily attributable to the redevelopment of Michigan Avenue which in turn created demand.

The next event in the development cycle is what is termed "filtering",(i.e., those displaced from prime land locations and seeking comparably priced land nearby). Those in turn replace and upgrade land uses in adjacent areas. The process generally stops at tertiary land use displacement for a city like Chicago.

The increase in land value attributable to the three major categories (low, medium and high levels) were roughly estimated and are presented in Table IV. 7 along with transit improvement pertinent assumptions. (Low level transit improvement implies a Do Nothing Alternative or minor improvements to the present system, medium level implies a Distributor subway variation with a new aerial loop structure, and the high level implies a Distributor subway and new loop subway.)

Valuation trend for unchange land use

The Review of the data from the Assessor's book clearly indicates that many property values are not upgraded. Under the rapid growth market conditions such periodic upgrading is not only desirable but justified particularly when major transportation improvements are near ready for implementation.

The dollar amount of this reassessment in our opinion will be at least $100 million by 1990 as a result of the implementation of the proposed project. This amount may reach up to $500 million if necessary re-assessment is made for all the properties located in the loop area. These amounts were not included in Table IV.8 insuring that the land value impact analysis is conservative.

b. Increase in value of improvements

This value increase is primarily generated by new construction activity which includes office space, retail space, hotel and residential construction. Although the increase in the value of improvements to existing structures is not insignificant, the magnitude of such improvements is likely to fluctuate to a great extent. Depending upon the level of transit improvement and other related factors, developers will evaluate their development options. This factor becomes particularly critical if a transportation option containing a new elevated structure is adapted. Under these circumstances developers are likely to adopt a "wait and see" attitude to determine how much of the proposed urban integration is being successfully implemented.

The expected increase in the value of improvements attributable to the major categories of transportation improvements were roughly estimated and are presented in Table IV.8 along with pertinent assumptions.

TABLE IV. 7

INCREMENT IN LAND VALUE RESULTING FROM NEW CONSTRUCTION (1975-1990)

	Construction (million sq. ft.)	Floor Area Ratio	Land Required (million sq. ft.)	Increment In Land Prices	Increase Tax Base (million)
Primary					
High	25.1	15/1	1.67	$45/sq.ft.	$ 75.15
Medium	20.6	15/1	1.37	40/sq.ft.	54.80
Low	14.3	15/1	0.95	35/sq.ft.	33.25
Secondary					
High	One half the land displacement		0.835	20/sq.ft.	16.70
Medium	by primary land use change		0.685	15/sq.ft.	10.27
Low			0.475	10/sq.ft.	4.75
Tertiary					
High	One half the land displacement		.417	10/sq.ft.	4.17
Medium	by secondary land use change		.342	8/sq.ft.	2.73
Low			.237	5/sq.ft.	1.18
Apartments	Units				
High	25,000		2.88	20/sq.ft.	57.60
Medium	20,000	--	2.30	15/sq.ft.	34.50
Low	15,000		1.73	10/sq.ft.	17.30
Total					
High					$153.62
Medium	--	--	--	--	$102.30
Low					$ 56.48

TABLE IV. 8

INCREMENTAL VALUE OF IMPROVEMENTS

(1975-1990)

FACILITY	QUANTITY	UNIT COST	TOTAL INCREMENTAL VALUE - (MILLIONS)
Office			
High	25.1 Million Sq. Ft.	$35/Sq. Ft.	$878.50
Medium	20.6 " " "	$35/Sq. Ft.	$721.00
Low	14.3 " " "	$35/Sq. Ft.	$500.50
Hotel			
High	10,000 Rooms	$30,000/Room	$300.00
Medium	7,500 "	$30,000/ "	$225.00
Low	5,000 "	$30,000/ "	$150.00
Retail			
High	1.0 Million Sq. Ft.	$35/Sq. Ft.	$ 35.00
Medium	.75 " " "	$35/ " "	$ 26.00
Low	.50 " " "	$35/ " "	$ 17.50
Apartments			
High	25,000 Dwelling Units	$16,000/unit	$400.00
Medium	20,000 " "	$16,000/ "	$320.00
Low	15,000 " "	$16,000/ "	$240.00

Summary

Table IV. 9 summarizes the total impact of both land and improvement value changes that will be induced by the major categories of transportation improvement optioms. This table shows that the improvements that will exert the strongest development influence (i.e., proposed project) will induce nearly $800 million of increamental property values over the do nothing type improvements within the 1975-90 period. It is noteworthy that under the do nothing option nearly one billion dollars of investment in property values will occur. However, this increament in property values should be put in a proper perspective.

To begin with, the announcement of a major transit improvement program in 1968 has already initiated major development committments from the private sector. Now, even if the do nothing option is adopted, those who have heavily invested in the central area will attempt to keep the area vital and growing. Furthermore, the do nothing option will increase values in limited high density clusters as compared with the other options which will spread the benefits more uniformly.

TABLE IV. 9 TOTAL INCREMENT IN PROPERTY VALUES 1975-90

(In Millions of Dollars)

CATEGORY	LEVEL OF TRANSIT IMPROVEMENT		
	High	Medium	Low
Land Value	154	120	56
Improvement Value	1,613	1,292	908
Total	1,767	1,412	964

3. Regional Development

One of the major goals of this project is to strengthen the position of Chicago's Central Area as the commercial heart of the entire metropolitan area. The predominant position of this area in the development of the region has been somewhat eroded by two factors: Obsolescence of some of its facilities, and the suburbanization Chicago has undergone in common with most other cities. Suburbanization is not simply a growth of the metropolitan area but an outmigration of population and economic activity from the central city. Two key factors made this possible: the ease with which middle-income white families could purchase new outlying homes by availing themselves of FHA funding, and the new expressways built as part of the Interstate Freeway system with the federal government absorbing 90% of the cost. The low density of development in the new suburban regions has led to an overwhelming reliance on the automobile as the primary means of transportation. The traditional street system and high intensity of development of the central city did not allow a sufficiently fast accommodation to automobile transportation. Competing regional shopping centers with ample parking and more modern merchandising facilities were able to wrest a portion of the central area's retail functions away. Subsequently, with interurban transportation practically confined to auto and air travel, suburban office centers appeared, competing with the central city's employment and financial functions. The new outlying facilities, even though

they lack the excitement of the central area, offer greater amenities: controlled environments for pedestrian circulation, greater apparent security, and less congestion.

Another factor which has hampered the Loop area in particular has been the development of a new high-intensity section along North Michigan Avenue north of the river, with inadequate transit linkage to the traditional center. This has led to a measure of competition, with the North Michigan area in a sense "taking" some of the loop's resources away (prestige retail outlets and professional practitioner's offices).

Thus, Chicago's center has suffered a relative decline in the strength of its commercial functions due to the following facts:

a. Outmigration of population.

b. Growth of new outlying commercial centers with more amenities.

c. Existence of a bi-nuclear center.

The proposed project is expected to affect these three factors in the following way:

a . By tying present and proposed residential areas in Chicago to the local rapid transit system and the regional commuter railroad network, their desirability will be increased, more so as time goes on and those areas which are limited to auto transportation begin to feel the effects of increased fuel costs.

b. The enclosed pedestrianways included in the project, together with the existing network, will allow convenient and comfortable pedestrian circulation throughout a large part of the loop area, allowing direct access to a much larger variety of services than any of the outlying centers.

c. By linking the North Michigan area to the loop and the commuter stations, the development of the entire central area will become more integrated and hence more efficient.

The benefits obtained from maintaining the primacy of the central area are:

a. Preserving and fully utilizing the region's balanced transportation system, which does not rely on one mode to the exclusion of others. Further suburbanization would place a greater share of the transportation load on autos and busses, whose operating expenses will rise drastically in the next few years due to anti-pollution regulations and fuel scarcities. In addition, full utilization of the radial characteristics of the existing transportation system will be attained.

b. Preserving and fully utilizing the infrastructure built up over the last hundred years to support the concentrated development of the central area. As outlying commercial centers develop, they will have to invest in new service systems, creating redundancy and

underutilization.

c. Preserving open land: the land consumed by a suburban project is newly removed from a productive use (agriculture or recreation), whereas the smaller amount of land taken by its central city counterpart is often land which is presently underutilized (railroad yards) or being used for inappropriate functions (industrial uses in residential areas). In other words, the efficacy of land use is better served by redeveloping the central area.

Construction of the proposed project will cost approximately $1.5 billion, spread over 10 years. A high proportion of this money will be spent within the Chicago region on the purchase of labor, material, etc. By the time the intra-regional expenditures have passed through the economic system, they will have multiplied to perhaps three times their original amount. A high proportion of the total generated expenditures will be reflected in the personal incomes of the Chicago region residents.

i. Transportation Systems

Impact of the proposed system would go beyond increasing ridership levels on CTA rapid transit lines. It is expected that the proposed system would generate more development activities in the central area that would generate more employment opportunities, increase land values, drive marginal land use functions out of the central area (e.g. parking lots and marginal parking garages), and in general increase the number of destinating trips to the central area. This situation would benefit all modes of public transportation through increasing their ridership level. (Estimates of future loop and central area employment are found in Tables 2 and 3 of Appendix 2 .)

For the average weekday in 1990, analysis indicated that the do nothing alternative would generate a total of about 890,000 trips to the central area, 570,000 of which would have destinations within the loop area. Implementing the proposed system, it is estimated that additional central area developments could attract an additional 100,000 persons during the average weekday; 70 per cent of which would have destinations in the loop. Moreover, the changing character of public transportation service would increase its share of moving people to the central area from the present 54% of the total to about 64% during an average weekday in 1990. It is estimated, on the other hand, that the do nothing alternative would result in stabilizing the current share of public

transport modes even in the face of growing fuel shortage and the increasing costs of owning and operating a private automobile. Therefore, public transport ridership to the central area is estimated to increase from do nothing level of persons to about 630,000 persons during the average weekday of 1990. (Complete central area patronage and modal split figures are shown in Tables 5 and 6 respectively of Appendix 2 .) Public transport ridership to the loop area is expected to match this growth increasing from the do-nothing levels of 315,000 trips to 465,000 by 1990. (Complete loop area patronage and modal split figures are shown in Tables 7 and 8 respectively of Appendix 2 .)

This indicates that all public transport ridership to the central area is expected to increase by about 160,000 trips over the do nothing situation. This increase would have to be accommodated by private automobile transportation in the absence of the proposed system. Part of that increase would have to be diverted to destinations in suburbia where developments would be located. (The methods used for estimating patronage and modal split are described in Appendix 2 .)

Analysis of this auto-diverted traffic to public transportation use in the Central Area showed a net annual savings of about 1.2×10^9 vehicle miles of travel at the 1990 levels, about 3% of total estimated automobile travel in the Chicago Metropolitan Area. Such savings includes diverted traffic with destinations in the central area. It is expected however, that the proposed project

would encourage using public transportation for trips with both origin and destinations outside the Central area by making use of the excellent inter-line transfer facilities to be provided in conjunction with the project. The Distributor subway would connect the three major railroad terminals in the Central Area with the CTA system, making it faster and more convenient for central city residents to use commuter railroads to reach employment locations and other community service establishments in suburban areas. No estimate has been made of such potential additional diversion to public transport use, or its implications on auto travel savings.

The environmental benefits of the proposed project in the areas of air quality and energy uses discussed in the report are basically related to the above estimated savings in automobile vehicle miles of travel.

Estimates made for this study indicated that, barring any restrictive policies on auto access to central areas, automobile travel to the central area would maintain, more or less, current levels, albeit at a much higher level of activities. Therefore, demand for parking is expected to match current levels within the total central area. Location of such parking space would materially change; the intensive commercial development in the heart of the downtown area and along Michigan with attendant increases in land values would drive the majority of marginal parking lots and garages to

the outer peripheries of these areas. Such peripheral locations would be connected with the CTA and Distributor systems for efficient passenger distribution within the central area.

Analysis estimated weekday Distributor patronage in 1990 to be 131,000 during normal weather conditions and 146,000 under adverse weather conditions. A fare of 35 cents (the current shuttle fare) was assumed to prevail as was the current practice of free transfers between rapid transit lines.

The patronage on the Distributor does not correspond to any significant further reduction in automobile V. M. T. beyond that caused by trip diversion to the public transit facilities entering the central area. This is due to the fact that most Distributor trips are transfers from other public transit modes and auto VMT reduction caused by diversion to those modes has been tabulated. To consider Distributor patronage as indicative of further VMT reduction would be double-counting.

5. Economic Dislocation

Economic dislocation attributable to the project will be of two types:

Those dislocations caused by construction activities and dislocation caused by changes in land use or land values brought about by completion of the project.

a. Construction-caused dislocation:

In addition to those dislocations caused by land takings (discussed in Section IV.B. "Relocation") other businesses may be forced to move or shut down because of impaired customer access or inability to be adequately supplied and serviced. Outside the Loop and the near north area, construction-caused dislocation forces will be countered by mitigating factors. Those parts of the alignment which will temporarily impede access to commercial or industrial establishments are:

1. Ravenswood-Evanston (Larrabee and Kingsbury South of Division)

The strip of small stores on Larrabee just south of Division is the only local shopping area available to residents of this neighborhood. These businessses (food and liquor stores, taverns, laundromats and drycleaners) serve the day-to-day needs of their immediate

surroundings. Only in the unlikely case that access is completely cut off all along Larrabee will customers patronize stores elsewhere. Industrial or wholesaling establishments can be serviced from cross streets, a situation not much different from today's since Larrabee is not a primary access route.

South of Chicago Avenue, the existing right of way is sufficiently wide to assure uninterrupted (albeit at times circuitous) access to establishments relying on rail freight to satisfy their servicing needs.

2. Lake-(Randolph between Ogden and the Northwestern Station)

   The wholesaling food and plant stores located along this street west of the Kennedy Expressway will be assured of adequate access because of the width of this street (150 feet) and its lack of through traffic. Between the expressway and the commuter station, the occupants of the loft buildings facing Randolph will continue to rely (as they do now) on access from alleys.

3. Land uses along Monroe Street west of Canal are similar to those along Randolph between the

expressway and the Northwestern Station, and their servicing needs are also met through alleys.

The remaining segments of the project outside the Central Area will not cause any foreseeable dislocation due to construction. In the central area, economic dislocation is a more serious problem. Businesses along Wells and Lake will suffer insignificant impacts due to the demolition of the existing structure. Along Franklin Street and Randolph or Van Buren west of Clark, there are few establishments that are relying on large numbers of passersby.

The eastern parts of Randolph and Van Buren (especially between Clark and State), along with Wabash will be the most seriously impacted areas, where smaller stores, especially those satisfying casual or impulse desires, will be in greatest danger.

Residual effects may possibly occur along adjacent sections of cross streets and on Michigan Avenue, as construction inconveniences potential patrons.

Along the northern route of the distributor, specialty shops and entertainment establishments on Walton west of Michigan and on Rush Street are susceptible to some measure of economic displacement.

b. Dislocation after completion of the project:

Since the completed project will be less disruptive and more extensive than the facility it replaces, the economic desirability of areas in its vicinity will increase. This should lead to their redevelopment and the dislocation of those people and establishments least able to afford

increased rents. For a description of those areas where such displacement way access see section IV.B., Neighborhood Characteristcs and Services. This type of dislocation will be most prevalent in the following areas:

6. Service to transit dependent groups

The transit dependent groups comprise that part of the population which mainly relies on public transportation for mobility, either because they lack the physical facilities required to operate an automobile (the young, infirm and handicapped) or because they cannot afford the costs of its operation and upkeep. (the poor).

Present service to the handicapped is unsatisfactory: although some buildings have direct access to subway mezzanines, there is still the necessity of descending one flight via stairs or escalators. The State-Lake elevated station has an escalator to the street level, but this only provides access to the inner loop, since this is a side-platform station. Marshall Fields has direct access to the inner loop, but there is a difference in elevation between the platform and the waiting area, which requires negotiating a short flight of stairs. Outside the loop the only station which does not require climbing stairs is Halsted-Morgan on the Congress line (this is linked to street level by a ramp).

Low income groups depend on industrial employment to a greater extent than the general population. As industry leaves the central city, the importance of commuter railroads to link these people with their sources of employment increases. Presently only one of the four commuter stations in the loop has a direct link to the rapid transit system.

Two other factors contribute to the present low level of service to poor people: the lack of direct access from their residences to rapid transit stations (entailing a ten cent surcharge for a transfer from nearly buses to rapid transit) and the fear of crime in older stations, with their low level of illunination and lack of surveillance.

The proposed project will benefit both sectors of the transit-dependent population.

It will benefit the seriously-handicapped by providing elevators affording direct access to platforms. Those whose mobility is not critically impaired, but who are handicapped or infirm, will benefit by the reduction in vertical travel necessary to transfer between lines, as well as the pedestrian walkways, which eliminate curb crossings and provide a measure of environmental control.

Low income people will benefit by increased access to the rapid transit system which will in turn offer increased accessibility to employment and services in the central area (due to greater coverage). Transfers between lines will be easier, facilitating their access to jobs away from the central area. Most important of all, by affording direct links to the commuter railroad stations, the employment opportunities in the suburban fringes will be made significantly more accessible.

F. Noise

a) Existing Conditions

1) Ambient noise

Ambient noise levels in Chicago are surveyed in the recent paper "Background Noise Study in Chicago" by Cosimo Caccavari and Howard Schechter, Department of Environmental Control, Chicago (Paper #73-193 presented at the 66th Annual Meeting of the Air Pollution Control Association in Chicago, June 24-28, 1973). The paper states that "the major source of noise and the dominating factor in affecting community background noise levels are transportation noises" and" only in isolated instances do other sources dominate the urban noise levels." In the four residential areas of Chicago which were surveyed, 10th percentile ("peak") noise levels (L_{10} -the noise level exceeded 10% of the time in a given hourly sample) ranged from 42DbA to 75DbA. In these same areas, L_{50} ("average") noise levels ranged from 39DbA to 68DbA and L_{90} ("background") noise levels ranged from 31DbA to 61DbA. At the busy intersection of State and Madison Streets in the Loop, 10th percentile noise levels ranged from 66DbA in the early morning hours to 80DbA in the morning peak traffic hours. L_{50} noise levels varied between 61DbA in the early morning to 75DbA during peak morning traffic and L_{90} levels ranged from 56DbA in the early morning to 70DbA during peak traffic hours. Measurements taken in the business district at 325 N. Wells Street show an L_{10} variation between

67DbA in the early morning to 79DbA in the peak traffic hours and a corresponding variation of L_{50} from 61DbA to 73DbA. L_{90} levels range between 54DbA in the early morning to 68DbA during peak traffic hours. These noise levels can be put in perspective by noting that noise levels above 68DbA can cause interference in normal conversation conducted at a distance of one foot.

The data of Caccavari and Schechter can be supplemented by the following table, supplied by Wilson, Ihrig and Associates, Inc. which shows typical community noise levels observed in a metropolitan area:

Typical Community Noise Levels Observed in a Metropolitan Area

Type of Area	Type of Noise	Noise Level DbA
Quiet Residential	Background - Day	40-50
	Background - Night	35-45
Average Residential	Background - Day	50-60
	Background - Night	40-50
Semi-Commercial Residential	Background - Day	50-60
	Background - Night	45-55
Commercial	Background - Day	55-65
	Background - Night	45-55
Residential removed from Freeways and Boulevards	Autos	60-70
	Trucks	70-80
	Airplanes	60-70
	Freight trains	80-95
Residential near Flight Pattern	Airplanes	75-85
Industrial	Background - Day	60-70
	Background - Night	50-60
	Autos	65-75
	Trucks	75-85

2) Transit system noise

The existing elevated system in Chicago creates considerable noise on the street carrying the transit line, intersecting streets and, outside the Loop, on adjacent streets. Typical noise levels at 50 feet from the Chicago Transit Authority (CTA) elevated lines range from 95 to 102 DbA for 2 car trains operating at 30 - 50 mph, according to Wilson.* These noise levels are 10 to 17DbA above the 85DbA maximum single event passby noise level criterion (at a 50 foot reference distance) for Commercial areas proposed by the Institute for Rapid Transit in "Guidelines and Principles for Design of Rapid Transit Facilities" and adopted by the Washington, Baltimore and Atlanta systems. Wilson's estimates of typical CTA noise levels are 25 to 32 DbA above the 70DbA maximum single event passby noise level criterion (at 50 feet) proposed by the IRT for quiet residential areas, and 15 to 22 DbA above the 80DbA threshold of peak noise levels considered normally unacceptable in residential neighborhoods by the U.S. Department of Housing & Urban Development.

Wilson's estimates are supported by unpublished data gathered by the CTA in the loop which indicates background noise levels of 66 to 75DbA and train noise levels ranging from 76 to 104DbA. In outlying areas, the CTA observed noise levels from 90 to 110DbA from passing trains when measurements were taken directly under the structure.

Using Figure 3, pg. 17 of DOT report OST-ONA-71-7 to estimate the fall off of noise with distance, Wilson's estimates suggest that peak train

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*"Noise Abatement," G. P. Wilson, presented at Rail Transit Conference of American Transit Association, April 1973.

above the 75DbA average noise levels observed in the loop during rush hours will be observed from 650 to 1050 feet (1 1/2 to 2 1/2 blocks) away from the tracks on intersecting streets. At 1000 feet from the elevated lines the noise from 2 car trains travelling at 30 - 50 mph can be expected to range between 70 and 77DbA if the sound is transmitted over open level ground.

On the other hand, there seem to be very few problems with surface noise or noise induced by ground transmitted vibrations from the existing subway system and these noise levels are generally expected to be below the ambient noise levels in the vicinity of the subway lines.

On board noise on a representative 2200 series car has been measured by Wilson, Ihrig and Assoc., Inc. The noise levels ranged from 77DbA on ballast and tie welded rail track at 30 mph to 97DbA at 50 mph in a round concrete subway tunnel section. This noise is mainly due to wheel and rail noise, since the maximum interior noise level recorded in the test car when the car was jacked up in the shop with the propulsion system running and the wheels spinning at a simulated speed of 50 mph was 76DbA.

Unpublished CTA data indicates that ambient noise levels in existing stations range between 55 and 68DbA. Data taken by Wilson, Ihrig and Assoc., Inc. shows maximum noise levels in subway stations when trains are passing through which range between 91 and 111DbA. Unpublished CTA data indicates that peak noise levels in elevated stations range between 89 and 106DbA when trains are passing through.

Since reliable conversation becomes difficult at noise levels above 77DbA even when speaking with a raised voice at a distance of 6 inches, noise levels on the existing system are clearly excessive for communication, as well as for comfort.* In sum, the existing transit system in Chicago exposes riders and non-riders to excessively high noise levels and anything that can be done to reduce these levels will constitute a major beneficial environmental impact.

b) Impacts of the proposed sytem and the various alternatives

1) Short term impacts

The do-nothing alternative involves no added short term noise impacts from construction or demolition, but it does involve the continuance of the high noise levels produced by the existing elevated system and the increasing community noise exposure caused by the use of motor vehicles to absorb any future increases in travel demands. Modification of the existing system would probably involve some short term noise impact which would not be too difficult to control as no major demolition and construction work is required.

Any alternative which requires the demolition of parts of the existing system and construction of new transit lines will have a significant short term effect on the noise levels in the community during the demolition and construction phases. As a general rule, community noise exposure

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*Table 9.2, "Handbook of Noise Control" C.M. Harris, New York, 1957.

will be substantially less when subway alternatives are constructed by tunneling than by cut and cover construction.

To alleviate these noise impacts contract specifications will require that all contractors comply with the construction noise regulations contained in the Chicago Noise Ordinance. These standards demand that construction equipment (not including pile drivers) be limited to the following noise levels in DbA measured at 50 feet from the equipment:

Manufacture Date	Noise Limit DbA
After 1/1/72	94
After 1/1/73	88
After 1/1/75	86
After 1/1/80	80

The provisions of the Noise Ordinance should assist in limiting the short term impact of demolition and construction noise on the community.

Construction workers are protected by the Occupational Health and Safety Act of 1970. Pursuant to this Act, Safety and Health Regulations for Construction have been promulgated (Federal Register Vol. 37, #243, Saturday, Dec. 16, 1972) which requires that steps be taken to protect the hearing of workers exposed to noise levels exceeding those set forth below:

Daily duration of exposure (hours)	Maximum permissible noise level (DbA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
.5	110
.25 or less	115

2) Long term impacts

The proposed system will essentially eliminate wayside noise from the elevated transit lines in Chicago's Central Area. The system will also eliminate the traffic noise produced by an estimated 1.2×10^9 VMT of vehiclular travel in 1990, by diverting this travel to the subway.

Because the noise impacts of transportation systems are an important focus of community criticism, it seems worthwhile to review the noise characteristics of the various alternatives at this point.

The noise impact of the do nothing alternative centers on the performance of an increasing admixture of newer cars, built under the noise specifications adopted for new cars by the CTA, on the existing tracks. In a paper entitled "Chicago's Noise Control Program" presented at the Rail Transit Conference of the American Transit Association in April 1973 by G. P. Wilson, it is stated that:

> Noise generated by wheel and rail interaction and the vibration caused by the wheel and rail interaction forces results in noise radiation from car wheels, car truck frames, rails and way structures and is the main or principle source of noise radiated as a result of CTA rail transit vehicle operations. There are three main series of cars in use on the CTA system; the 6000 series St. Louis cars with Clark B-2 trucks, the 2000 series Pullman cars with LFM trucks and the 2200 series Budd cars with Budd Pioneer III trucks. The 2200 series Budd cars have aluminum center wheels and the other two series cars have solid steel wheels. The propulsion system noise for each of these series was tested with the cars on jacks with the wheels spinning. From these tests it was determined that the propulsion system noise was con-considerably less than the total wayside noise for all types of operation but especially for elevated structure and subway operation.

> One of the factors that is significant in the wheel-rail noise generation is that the CTA system experiences extensive rail corrugation as the rails wear. The rail corrugation or roughness results in increased vibratory forces at the wheel/rail interface and, therefore, increased noise compared with smooth rail. Initial tests with trains running at constant speed through areas with no rail corrugations, such as those found at some station platforms, showed noise levels 3 to 4 DbA (A-weighted sound level in decibels) less than for operation on adjacent sections of track which were worn and corrugated due to higher speed operation. This result, and earlier experiences of the CTA, indicated the need for and value of a rail smoother for minimizing noise from operations.
>
> Very little difference was found in the radiated noise from the three types of cars for operation on various way structures. It was found that under some operating conditions the 2200 series cars with aluminum centered wheels did produce 2 to 3 DbA greater noise level than the other two series of cars. The airborne noise radiated by the transit cars is highly dependent upon car speed; however, tests with the cars operating at identical speeds over the same section of way structure showed that similar noise levels were produced by each car type.
>
> For example, for operations on either solid web or open web steel elevated structure at 40 mph all of the types of cars produced noise levels between 97 and 99 DbA at 50 feet from the track centerline, for 2-car trains. Similarly, for operation on ballast and tie tracks with jointed rail all of the car types produced noise levels at 50 feet from track centerline of 87 to 89 DbA for 40 mph operation of 2-car trains. For subway operation a similar consistency of noise level generation was found although it was also found that the subway noise levels were highly dependent on the type and arrangement of the subway structure."

Wilson has also gathered data which shows that the noise from auxiliary systems is lower than that from the propulsive system on the new and old CTA cars at normal operating speeds.

This leads to the conclusion that the existing system will generate unacceptable noise levels even as the percentage of newer cars built

according to the CTA noise specification (and possessing lower auxiliary and propulsive system noise levels) is increased. This is because of the dominance of wheel and rail noise on the existing lines.

The unacceptable noise performance of the existing system coupled with the need for additional transit services and the maintenance, safety and structural deterioration problems as well as the blighting visual impact of the existing elevated structures is what led to the abandonment of the do nothing alternative. In the opinion of Dr. G. P. Wilson, modifications might reduce noise levels on the existing system by 10 - 15 DbA, but the measures are expensive and their practicality and effectiveness are in doubt.

One of the major long term environmental impacts of the proposed system, which involves demolition of the existing elevated Loop transit line and construction of new lines to replace and supplement it, will be a substantial reduction in community noise exposure. This is a two-fold effect. The first effect will be the elimination of the excessive noise associated with sections of the existing elevated lines. Secondly, travelers will be diverted from noisy vehicular travel to subway lines. It is estimated that 1.2×10^9 VMT of noisy vehicular travel will be diverted to the proposed system in 1990, and this provides a reduction in overall community noise compared to the use of automobiles and buses for transporting people. In fact, the same number of people can be moved with a lower community noise exposure by a subway system than by any

other form of transportation.

The proposed system is designed to meet or exceed the Institute for Rapid Transit (IRT) Noise Criteria for wayside and passenger noise exposure, and generally speaking, this should reduce community noise exposure to readily acceptable levels and passenger noise exposure to levels well below those endured on the existing system.

That segment of the proposed distributor system which is at grade on the existing Illinois Central right of way will have very little effect on the existing noise environment in that area. In areas where the proposed transit system right of way is for the exclusive use of CTA trains, the final design of the proposed system will insure that the transient noise level at 50 feet from the track center line resulting from train operations will not exceed the following IRT criteria levels:

NOISE CRITERIA FOR TRAIN OPERATIONS

	Area Category	Transient Noise Level Criteria
1.	Quiet residential	70 DbA
2.	Average residential	75 DbA
3.	Busy residential/semi-commercial	80 DbA
4.	Commercial/open	85 DbA

These criteria should be easily met by all subway segments of the proposed system. Generally, air borne surface noise from subways is not a problem. Occasionally reradiated noise from structures caused by ground transmitted subway vibrations can be a problem. The absence of serious surface noise and vibration problems with the existing Chicago subway makes the

occurence of such problems on the proposed system unlikely. Nevertheless, the system's noise performance will be completely reviewed by an acoustic consultant during the final design phase and any localized noise and vibration problem areas will be eliminated by limited use of floating slab construction.

In those areas where transition sections for the proposed system are elevated or at grade, sound barrier walls will be used where necessary to reduce wayside noise levels at 50 feet to the levels specified in the IRT Criteria. The effectiveness of sound barrier walls is shown by a BART study which indicates that such barrier walls can provide noise reductions of 12 to 14 DbA.* For these purposes, the criterion for maximum transient noise levels when trains are operating in the median strip of an expressway shall be taken at 85 DbA.

The IRT Guidelines states that: "In view of the transient nature of train operational noise, community acceptance should be expected provided noise levels do not exceed these criteria." Use of Figure 3 in the DOT report OST-ONA-71 7 indicates that if the proposed system is designed to meet the IRT noise criteria for maximum transient noise for the passage of an 8-car train at 50 feet, the following maximum transient noise levels will be observed at 1000 feet from the track in

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* "Acoustics Studies,"San Francisco Bay Area Rapid Transit District Demonstration Project Technical Report #8, Parsons Brinckerhoff-Tudor-Bechtel, June 1968.

various types of areas.

Area Category	Maximum transient noise at 1000 feet from track
1) Quiet residential	50 DbA
2) Average residential	55 DbA
3) Busy residential/semi-commercial	60 DbA
4) Commercial/open	65 DbA

This indicates that the peak noise levels produced by operation of 8-car trains on surface or elevated lines will be undiscernible amid the average urban daytime noise at distances of 1000 feet from the track.

Acceptable noise performance can be achieved by elevated lines. However, any aerial structure proposed for the Chicago Loop faces the difficulty of the tight radius turns which would be necessary on the new aerial lines. These tight radius turns present the possibility of wheel squeal problems of significant proportions. It appears unlikely that these wheel squeal problems could be eliminated on an elevated line, at least with existing rolling stock. If an elevated alternative were to be chosen, it would be necessary to build a test track with tight radius curves to show that wheel squeal could be controlled when existing rolling stock used the proposed elevated structure. The subway system completely eliminates these surface noise problems. The only exceptions are those segments of the system where the transit line lies in the median strip of an expressway and short elevated sections are used for transitions. In these cases, transit system noise levels should be masked by the noise produced by automotive traffic.

3) Special Problem Areas

The following sensitive locations, which could be adversely influenced by the noise and disruption caused by demolition and construction as well as noise and vibration during transit system operations, will be affected by the transit systems proposed in the 1968 Transit Planning Study for the Chicago Central Area:

a) Distributor System

- Northwestern Medical School and Wesley Research Hospital (North Fairbanks between East Superior and East Chicago)
- Floyd E. Patterson Memorial Building of Passavant Memorial Hospital (North Fairbanks between East Huron and East Superior)
- Veterans Administration Research Hospital (North Fairbanks between East Erir and East Huron)
- Shubert Theatre
  22 West Monroe
- Monroe Theatre
  57 West Monroe

b) Loop System

- Mary Thompson Women and Children's Hospital (1600 - 1610 West Maypole)
- Chicago Eye, Ear, Nose and Throat College and Hospital (231-235 West Washington at Franklin)
- Chicago Kent College of Law (12 North Franklin)
- St. Mary's Roman Catholic Church (21-39 East Van Buren)
- United Artists Theatre (33-35 West Randolph)

- Catholic Order of Foresters
  (301-307 West Madison at Franklin)

- Washington-Hermitage Housing Project
  (1701-1725 West Lake)

- Henry Horner Home Housing Project
  (1735-1759 West Lake)

- Chicago Housing Authority Project
  (1615-1687 West Lake)

- Cabrini Housing Project
  (Larrabee Street)

In these critical areas, the proposed system will be designed to the appropriate IRT Criteria for noise and vibration for the various building types. Where it is necessary to meet these criteria, the acoustic consultants will specify the use of floating slab construction or other noise and vibration isolating design features which may be needed to meet the criteria. There is no indication that the IRT criteria for noise and vibration cannot be met.

c) Conformity with other plans

Any transit development which makes a major commitment to noise reduction in its design will be substantially in accord with plans to reduce noise levels in the community as a whole. This is because the transit system carries passengers who would otherwise be crowding the streets and highways with noisy motor vehicles. A subway, which has the lowest surface noise levels of any transit system, is one of the most desirable steps toward reducing transportation related noise levels in a community.

C. Vibration

a) Existing Conditions

There seem to be no problems with ground borne vibrations induced by the existing subway system. On the other hand, there have been complaints regarding ground borne vibrations generated by the existing elevated line. Some of these problems may be associated with those CTA cars which do not have primary springs on their trucks. The relatively high unsprung weight of these cars causes them to generate more vibration than cars with more conventional trucks. It is not known what fraction of the present vibration problems are ascribable to this source, but this part of the problem could be mitigated by replacing the trucks on the offending cars or by replacing the cars with new cars which will not generate so much vibration. There are some steps which could be taken to mitigate the existing vibration problems. These steps have been discussed in the section dealing with noise impacts. However, once again, the effectiveness and practicality of the measures is definitely in doubt.

b) Impacts of the proposed system and various alternatives

1) Short term effects

There will undoubtedly be some minor vibration effects during demolition of the existing elevated structure and construction of the proposed system. Contract specifications will require contractors to control such vibrations to the maximum extent feasible. For example impact pile

driving and demolition techniques especially conducive to vibration generation will be restricted in the vicinity of hospitals. It should be noted that, with the soil conditions in Chicago where little or no blasting is required, tunneling operations are likely to produce lower levels of vibration than those produced by heavy machinery running on the surface during cut and cover operations.

2) Long term effects

Vibration is not expected to be a problem with a well designed modern transit line. The DOT report OST-ONA-71-7 makes the following general remarks regarding vibration induced by transit lines:

> "All types of rapid transit vehicle operations create some degree of ground-borne vibration which transmits to wayside buildings and other facilities. The ground-borne vibration is perceived by observers at wayside locations as either mechanical motion or as a low frequency rumbling noise generated by the mechanical vibration. Vehicle systems using steel wheels and rail create the greatest ground-borne vibration levels, however, the levels are significant only at short distances from either surface or subsurface operations.
>
> "Rapid transit vehicle operation can induce ground vibration by two mechanisms; (1) the airborne noise created by the transit vehicles can cause vibratory motion of the trackbed or subway structure and (2) the rolling wheels or the supporting air cushion can transmit forces to the roadbed which in turn results in vibration of the geologic media adjacent to the track facilities. The result is that the vibratory motion is transmitted through the surrounding geologic media to adjacent buildings and other facilities. ...the vibration induced by the airborne noise from surface or subway operations is not significant in terms of wayside ground-borne vibration levels so that only the vibration caused by the vehicle support system or the rolling wheels is significant in determine the wayside vibration levels.

> "It must be remembered that the estimated vibration levels assume that the track and car wheels will be maintained in good smooth condition. Rail corrugations and wheel flats can result in considerable increase in noise and vibration levels. The TTC has reported a 20 dB decrease in vibration levels by using maintenance procedures eliminating wheel flats and other poor operating conditions of equipment. Measurements of railroad noise and vibration levels indicate increases of 10 to 20 decibels when cars with wheel flats pass by compared to levels with cars having smooth wheels. It is, therefore, apparent that poor maintenance of the wheels and rails could result in an increase in vibration levels of 10 to 20 dB.
>
> "The apparent frequency distribution of the ground-borne vibration from transit trains changes as the distance from the source increases because, in soil, high frequency vibration is attenuated at a more rapid rate than low frequency vibration. This effect is the most significant factor in determining the amplitude and frequency distribution of wayside ground vibration from transit vehicle operations. Unless the building is directly attached to a subway structure the vibration levels from the transit vehicle operations are considerably less than that required for any damage to any type of building or to have any effect on the structural stability of buildings. With buildings directly attached to a subway structure, the vibration levels at high operational speeds are in the range which could result in small or hairline cracks in plaster, however, in any new facilities the potential of such results can be eliminated simply by providing for resilient joints between the subway structure and the building structure.
>
> "The general conclusion . . . is that noise and vibration from high speed transit vehicle operation in subways will not have any detrimental effects on the structural stability of foundations or structures adjacent to the subways."

The DOT report goes on to make the following comments regarding propagation of noise and vibrations in geologic media:

> "Most of the information available on attenuation of vibration as it transmits through soil or rock is based on the

> propagation of waves induced by shock excitation such as blasting or earthquakes. There is some data available on the attenuation of transit vehicle induced ground vibration and the combination of this with data available from geophysical studies provides a basis for estimating the propagation characteristics of noise and vibration from transit vehicles in various types of geological media.
>
> "The basic fact which has emerged from studies of ground-borne vibration from transit vehicles is that, for the distances over which transit vehicle vibration levels are significant, there are only two basic types of media which must be considered; soil and rock. For propagation over distances of a few hundred feet the changes in the propagation characteristics of different strata of soil are not significant in terms of deriving the expected vibration levels from a transit train. Similarly, when the vibration is being transmitted through rock, changes in the rock strata do not have a significant effect on the propagation characteristics until the distances involved are very large.
>
> "The presence of water in soil does increase the efficiency of energy transfer from a subway to the surrounding soil, and perhaps the efficiency of energy transfer to a building, but it does not significantly effect the propagation of vibration through the soil once the energy has been transmitted to the soil strata.
>
> "The amplitudes of vibration from transit vehicles are such that the energy is dissipated in a few tens of feet or at least within a few hundred feet of the source."

The proposed subway is to be built in silty clay soils. There will be no tunnels in rock and only a short section in the hardpan (dense sandy clayey silt interspersed with seams and layers of dense silt, sand and gravel with fractured limestone or boulders) where the subway passes under the existing Congress subway.

An octave band analysis of the BART aerial structures (reported in

BART Demonstration Project Technical Report #8) indicates that vibrations produced by operation of 10 car trains on the aerial structure and transmitted through soil characterized as silt with fine clay or sand is below the level of human perception at a distance of 25 feet from the track. Nevertheless, elevated alternatives were eliminated for other reasons, the primary ones being the difficulty of constructing grade separations, and visual intrusion.

Similarly, an octave band analysis published in the DOT report OST-ONA-71-7 shows that subway vibration levels will be below the perceptible level on the surface.

The only possible vibration problem with the proposed subway system is the perception of rumbling noises created by structural vibrations induced by ground borne vibrations created by subway train operation. To avoid such problems the proposed system will be designed to meet IRT vibration criteria. It should be noted that the concrete tunnels planned for most sections of the proposed system are better from a vibration standpoint than steel tunnels, because of their greater mass.

During the final design process an acoustic consultant will review the entire system, paying special attention to the problem areas listed in the noise section, and specify floating slab construction and other vibration reduction and isolation techniques as needed to meet the IRT criteria for noise generated by ground borne vibration. There are no indications whatsoever that the IRT criteria levels cannot be achieved.

H. AIR QUALITY

a) Existing Conditions

Data on existing air quality in Chicago is published quarterly by the Chicago Department of Environmental Control. This data is from an intensive network of monitoring stations distributed throughout Chicago. Data is also freely available from the federally operated Continuous Air Monitoring Program (CAMP) station on the Congress Expressway and the state operated monitoring station at the University of Illinois Medical Center. A review of these data shows that Chicago's air quality is generally below the standards promulgated by the U.S. Environmental Protection Agency in the Federal Register for April 30, 1971.

An implementation Plan has been prepared for the State of Illinois and the Chicago Region, which will bring all pollutant levels in the Chicago region within the Federal Air Quality Standards by 1975, with the possible exception of the 8 hour carbon monoxide standard. The U.S. Environmental Protection Agency and state and local authorities are currently negotiating the details of a transportation control strategy aimed at meeting the 8 hour carbon monoxide standard by 1975.

Because of the time required for construction, the proposed program of transit system improvements cannot proceed fast

enough to have any impact on the plans for meeting the 1975 deadline for achieving Federal Air Quality Standards. However, the project will have a significant effect on the program for maintaining air quality in the future at the levels set by the federal standards. That is, it will be much easier to maintain air quality at the level set by federal standards in the years after 1975 if the proposed program of transit system improvements is completed.

Incidentally, since the existing transit system consumes less than 1% of the electrical energy generated annually in the area served by Commonwealth Edison, it can only be held responsible for less than 1% of the sulfur dioxide and particulate emissions produced by fossil fueled electric generating plants in the area.

b) Impact of the Proposed System

1) Short term impact

Demolition of the existing elevated system and construction of the proposed system will undoubtedly lead to some short term localized dust and particulate air pollution. To secure conformity with Chapter 17, Section 2 - 14, the Environmental Control Ordinance of the Municipal Code of Chicago, specifications will require that contractors take "reasonable precautions or measures

so as to minimize atmospheric pollution " from these sources.

Demolition and construction operations will require street closings and traffic restrictions which might be expected to lead to increased traffic congestion resulting in increased short-term vehicular pollutant emissions. However, the street closings and traffic restrictions required during the demolition and construction phases may have several other effects which will tend to counterbalance the trend towards increased traffic congestion and vehicular emissions. These effects of the restrictions on vehicular traffic during demolition and construction include:

- diversion of some motor vehicle trips to the central area to transit.
- diversion of some trips to the central area to other destinations. This is particularly likely for shopping trips and this may have a harmful effect on business.
- some through traffic which passes through the central areas will be diverted around the area.

The net result of all these effects is difficult to estimate, but it seems that there will be no serious short term impact on vehicular emissions and the resulting air quality.

2) Long term effects

Continued use of central area streets at the levels allowed

by the Transportation Control Strategy of the finally adopted Air Quality Control Implementation Plan (or utilization almost to the saturation level in the absence of such a plan) is expected under any alternative approach to the provision of added transit services, including the "do-nothing" alternative. Therefore, it may be assumed that the various alternatives will have no direct effect on the local air quality with respect to vehicle related pollutants in the central city area. However, the proposed system could have an important indirect effect on vehicle related pollutant levels in the central city area. The increased transit access to the central area provided by the proposed system would facilitate the introduction of stricter controls on vehicle use in downtown streets than would otherwise be possible, with an attendant beneficial effect on central area air quality. This is an important indirect consequence of the improved transit service provided by the proposed system.

In any case, the proposed system will have some beneficial effect on the overall air quality of the Chicago region. This is because the improved rail service should foster a more centralized pattern of development and increase the modal split in favor of transit. This implies that there will be less motor vehicle trips for a given level of economic activity with the proposed system than without it. Furthermore, the centralized development pattern

should lead to shorter vehicle trips than would otherwise be the case. The result is that the proposed system reduces vehicle miles of travel and the associated pollutant emissions below the levels expected in the do-nothing case.

It has been estimated that the proposed system will, in 1990, carry diverted passengers who would otherwise be responsible for 3.5×10^6 vehicle miles of travel on an average weekday, or 1.2×10^9 vehicle miles per year. The Chicago Area Transportation Study (CATS) estimates that there will be 39×10^9 vehicle miles of travel in the Chicago Standard Metropolitan Statistical Area in 1990. So, the proposed system will reduce vehicle miles of travel and, consequently, vehicular pollutant emissions by 3% from the standpoint of the entire SMSA. CATS estimates that there will be 9.9×10^9 vehicle miles of travel in 1990 in the City of Chicago itself, and the reduction in vehicle miles of travel and pollutant emissions produced by the proposed system represents 12% of the totals for the City of Chicago.

The average speed of the driving cycle developed to approximate average urban travel by the U.S. Environmental Protection Agency is 19.6 m.p.h. Using the emission factors for average 1990 vehicles operating at this average speed, as published in "Compilation of Air Pollutant Emission Factors, 2nd Edition" U.S. Environmental Protection Agency Document AP-42 (April 1973),

the estimated daily reduction in vehicle pollutant emissions in the Chicago area produced by the proposed system in 1990 are:

carbon monoxide	49.0 metric tons/day
hydrocarbons	7.0 metric tons/day
nitrogen oxides	7.7 metric tons/day
sulfur dioxide	0.7 metric tons/day
particulates	2.0 metric tons/day

1 metric ton = 2200 lbs.

The proposed system will have another minor effect on vehicular pollutant emissions. The proposed system will result in the elimination of bus services which were responsible for average daily pollutant emissions of the order of 10 Kg in 1973. In the do-nothing alternative, 1990 bus service will have to be more extensive than in 1973 to meet the expanded travel demand. Consequently, the emission reduction produced by the elimination of bus services by the proposed system in 1990 will be greater than the bus emissions in 1973, but it will be negligible in comparison to the emission reduction obtained by diverting automotive traffic.

The proposed system may be responsible for a small increase in area-wide sulfur dioxide emissions above those produced in the do-nothing case. These emissions would result from the combustion of fossil fuel needed to generate the power needed to run the proposed system. The net effect on sulfur dioxide and particulate pollution levels is expected to be negligible because:

- the present system uses less than 1% of the electric energy used in the Chicago area

-generating capacity is expected to grow faster than transit system power demand

-a greater percentage of electric generating capacity is expected to be provided by nuclear plants

-any increased SO_2 and particulate emissions occurs at the fossil fired generating plants where it is relatively easy to control

In conclusion, the increased transit capacity should materially assist in facilitating the plans required for maintaining air quality at the levels specified by Federal Standards in the years after 1990.

I. Energy and Petroleum Resource Consumption

a) Existing Conditions

The Commonwealth Edison Company serves the electric power needs of most of Northern Illinois. The Company serves about 2.5 million customers over a 13,000 square mile area and has a total electric generating capacity of about 14×10^6 Kw. CTA System wide power consumption for October 1973 was 4.5×10^9 KwHr. Commonwealth Edison indicates that power demand does not fluctuate greatly from month to month, suggesting a total annual power consumption in the vicinity of 54×10^9 KwHr/Yr. According to figures released by the Chicago Transit Authority Electrical Department, the CTA purchased 0.31×10^9 KwHr of electric energy during 1972. This shows that, on an annual basis, the CTA operations use less than 1% of the electrical energy consumed in the Chicago region.

According to the latest figures available from the American Petroleum Institute ("Petroleum Facts and Figures," 1971 Edition) 4.3×10^9 gallons of gasoline were consumed by motor vehicles in Illinois during 1969. In that year there were 5.2×10^6 motor vehicles registered in Illinois, indicating an average annual gasoline consumption of around 830 gallons per vehicle in Illinois, a figure which remained

relatively stable during the 5 to 10 years preceding 1969.

In 1973, there are about 1.3×10^6 vehicles operating in Chicago and, assuming an annual consumption of 830 gallons/vehicle, the estimated consumption of gasoline by Chicago-based vehicles in 1973 should be around 1.1×10^9 gallons.

b. Impact of proposed system

1) Short term effects

The amounts of energy and petroleum resources consumed during the demolition and construction operations necessary to develop the proposed system will be a negligible fraction of area wide consumption. Furthermore, development of the proposed system should result in no significant short term changes in area-wide energy and petroleum consumption patterns.

2) Long term effects

The proposed system (and, in fact, any alternative which provides increased transit service) will have a beneficial impact on the energy and petroleum consumption of the region. This is because the increased emphasis on public transport will divert passengers from petroleum consuming motor vehicles to railed vehicles which can transport passengers at a lower energy cost per passenger miles. The proposed system will result in a savings in the total energy and petroleum resources required to support a given level of economic activity, as compared to the do-nothing alternative.

It has been estimated that the Distributor portion of the proposed system will eliminate the need for bus services which consumed about 1200 gallons of Diesel fuel on an average week day (300,000 gallons per year) during 1972. At some future date (1990, for example) the proposed system will result in a substantially greater savings in Diesel fuel, since more buses and therefore more fuel would be required to meet the expanded travel demand at that time.

It has also been estimated that the proposed system will, in 1990, carry diverted passengers who would otherwise be responsible for 3.5×10^6 vehicle miles of travel on an average weekday or 1.2×10^9 vehicle miles per year. The Chicago Area Transportation Study estimates that there will be 39×10^9 vehicle miles of travel in the Chicago Standard Metropolitan Statistical Area in 1990. The proposed system will result in a 3% reduction in vehicle miles of travel and correspondingly about a 3% saving in gasoline and other auto-related petroleum products. Assuming an average fuel consumption of 12 miles per gallon (which may be low if automobile manufacturers respond to projected gasoline shortages by producing vehicles which consume less fuel per mile of travel), this would result in a savings of about 100×10^6 gallons of gasoline in 1990. This amounts to about 9% of the estimated total 1973 consumption of gasoline by Chicago based motor vehicles.

The diversion of traffic from automobiles to transit will result in a savings of about 14 x 10^{12} BTU of energy from gasoline consumption in 1990. The entire operation of the CTA consumed 3.1 x 10^{12} BTU during 1973. Estimates of vehicle miles of travel anticipated to meet 1990 travel needs have not yet been made. However, even if the proposed system were to result in a doubling of the power used by the CTA, there would be a net energy saving of around 8 x 10^{12} BTU in 1990 if the proposed system is developed, equivalent to the energy contained in 60 million gallons of gasoline.

J. Solid Waste Disposal

Construction of the proposed subway system will necessitate the disposal of approximately 4.4×10^6 cubic yards of spoil. This spoil will be primarily clay types of glacial till with considerable rubble. A more detailed characterization of the soils which will be encountered during subway construction is given in the 1968 Report "Transit Planning Study, Chicago Central Area" Volume 1. The upper 10 to 20 feet below ground level is miscellaneous fill, loose silt and sand or organic material. There is generally 5 to 10 feet of dessicated tough to hard silty clay underlying the upper material, followed by 30 to 50 feet of soft to stiff silty clay. Next, 10 to 30 feet of tough to hard silty clay and/or clayey silt is encountered and this is underlain by 10 to 50 feet of hardpan. The hardpan is characterized as "dense sandy clayey silt interspersed with seams and layers of dense silt, sand and gravel with fractured limestone and boulders." The proposed subway profile dips into this layer in only one place, for a distance of about 200 feet, where a single tube passes below the Congress subway. Finally the Niagaran limestone which comprises bedrock in the Chicago area, underlies the hardpan. The subway will not extend into bedrock.

Several alternative disposal sites are available for this excavation spoil. The first is the Illinois Central Air Rights project which will require as much as 3 x 10^6 cubic yards of fill for the reclamation associated with extending and relocating Lakeshore Drive. An environmental impact statement has been prepared by the Chicago Department of Public Works for the Wacker Drive Extension, Randolph Street, Columbus Drive and North Lakeshore Drive Extension project. Some of the subway excavation spoil may be used in this project depending on its phasing with respect to the Metropolitan Sanitary District Tunnel and Reservoir Project.

The second opportunity for spoil disposal is in conjunction with the Chicago Lakefront Plan of the Chicago Department of Development and Planning. The Chicago Lakefront plan is relying on fill from the subway project and the Tunnel and Reservoir project to create filled land in offshore areas of Lake Michigan near Chicago that are believed necessary for the future development of Chicago. For example, the Regional Open Space Plan adopted by the North Eastern Illinois Planning Commission recommends 3000 additional acres of open space for Chicago, much of it in Lake Michigan. Filled land created from subway spoil can make some of this acreage possible. Besides providing much needed open space close to the overcrowded areas of Chicago, the manifold benefits of the Lakefront Plan include shoreline erosion control, increased habitat for waterfowl

and shorebirds and cover and habitat for fish along the shores of the filled areas.

The creation of filled lands in conjunction with the Lakefront Plan has been very extensively studied in the Lakefront Land Development Alternatives Report prepared for the City of Chicago Department of Development and Planning by Knoerle, Bender, Stone and Assoc., Inc. and dated September 18, 1973. The use of impervious embankments or dikes to contain the spoil while it consolidates is planned.

The major environmental problems connected with the disposal of excavation spoil in the landfill operations are the destruction of some bottom habitat occupied by benthic organisms and the possibility of water pollution problems. The destruction of a small amount of bottom habitat is an inevitable consequence of the filling operation but the water pollution can be controlled. Where needed, the use of double walled impermeable breakwaters and an internal pervious diking system for dewatering of fill and treatment of the resulting leachates is planned to prevent the escape of polluted leachates into Lake Michigan. When necessary, the dispersion of the suspended solids from the fill material into the lake will be controlled with "turbidity curtains" (floating booms carrying suspended plastic sheeting.)

One more potential environmental problem which will be controlled is connected with the littoral drift--the net north-south

movement of sand and sediment along the Illinois shore of Lake Michigan in the vicinity of Chicago. If an obstacle such as a landfill is placed athwart this drift, sediment is retarded on the updrift side of the obstacle and there is an erosive action on the downdrift side. Landfill design will be aimed at avoiding littoral drift depletion of shoreline areas, and in some cases, inshore channels may be left to avoid any disruption of the littoral drift.

The Lakefront Land Development Alternatives Report contains a detailed list of the federal, state and local agencies involved with the project, the regulations which must be complied with and the permits and clearances which are being sought.

The third alternative for subway spoil disposal is Stearn's Quarry at 29th and Halstead. According to the Chicago Department of Public Works, this is a quarry in fractured dolomite limestone with a capacity of 11×10^6 cubic yards which is currently being used for disposal of incinerator waste and roadway demolition debris. It is possible that some of the subway excavation spoil could be used in conjunction with sanitary landfill operations on this site.

Demolition of parts of the existing elevated transit system will yield considerable quantities of rails, switches, cables, signals and associated hardware which will be salvaged for reuse or disposed of as scrap metal. Large amounts of scrap metal and lumber will also be made available during demolition of the existing lines and this will be disposed of on the scrap market.

K. Soils and Geology

The geology of the area and its effect on subway construction are best summarized by a passage from the 1968 Transit Planning Study:

> "...the upper ten to 20 feet below ground surface is mainly composed of miscellaneous fill, loose silt and/or sand, or organic material. The proximity of this material to the existing ground surface precludes consideration of tunneling directly in it. Where tunneling below this layer is planned, the crown of the tunnel must be deep enough to eliminate the possibility of drastic loss of air pressure. It is desirable to have ten feet of cohesive material between the crown of a tunnel and the bottom of such material. With the open cut technique this upper material has a tendency to fall or flow into the excavation, depending on the amount of water present. Steel sheet piling must be used, therefore, or lagging must be inserted between soldier piles so that the sides of the excavation are unsupported for only a short time. The design of any structure in this material should use a vertical overburden pressure between 120H and 150H pounds per square foot, depending on the backfill material used, where H is the distance from ground surface to the crown of the tunnel, and a ratio (K) of horizontal pressure to vertical pressure between 1/6 and 1/2. Probably relatively few buildings are founded on or in this material. Most of the existing utilities in the streets and the street pavements themselves are founded on or in this material. Unless existing utilities and street pavements are removed completely, precautions should be taken to insure against movement of the material.
>
> In general, five to ten feet of desiccated tough to hard silty clay underlies the upper material. The clay has relatively high strength. As this strength was obtained from a drying-out process, numerous shrinkage cracks in this layer can be expected. In tunneling, this material

will present few problems. The shrinkage cracks will constitute a pathway from the crown of the tunnel to the overlying granular and fill materials, however, which may result in a loss of air. This material will be well suited for open cut construction as it can stand unsupported for relatively long periods. Care will have to be taken to insure that no voids exist behind the temporary support or final structure because this material will eventually move to fill any such space. The design of all structures in this material should use the same criteria discussed for the upper layer except that a (K) ratio of 2/3 for the upper limit may be acceptable if no voids are left between the structure and existing soil. Some of the smaller and/or older structures adjacent to the proposed routes are probably founded on footings on or in this material; precautions will have to be taken, therefore, that this material does not move laterally which might permit settlement during and after construction.

There is 30 to 50 feet of soft to stiff silty clay under the desiccated clay. The lower strata ranges in unconfined compressive strength from 0.2 to 1.0 ton per square foot. Water content is from 20 to 40 percent. This material has a tendency to squeeze laterally and vertically immediately upon being disturbed. In tunneling, air pressure should be employed to counteract the squeezing phenomena. Hand mining will probably have to be employed in this material, rather than machine tunneling, where there are buildings close to the subway route. It will be imperative that temporary lining be placed tightly against the surrounding soil immediately after excavation of this material to minimize soil movement. In open cut operation with soldier piles and lagging, the lagging will have to be placed immediately after excavation. Special care will also be needed to avoid over-excavation outside the limits of construction. In open cut construction using steel sheet piling, the major emphasis during construction will be on erection of a bracing system capable of preventing deflection in the piling due to the build-up of pressure behind it. The type of construction operation used will have to be directly related to the design of the structure. If construction is performed by tunneling, a vertical pressure of 130H pounds per square foot is recommended; and if by open cut, a vertical pressure between 120H and 150H psf. should be used, depending on the type of backfill material. In a

tunneling operation, with temporary lining installed flush against the surrounding soil or in any open cut operation with permanent steel sheet piling, ratios (K) between 2/3 and 1.0 will be acceptable. In a tunneling operation with the temporary lining not flush with the surrounding soil or in an open cut operation with soldier piles and lagging or temporary steel sheet piling, ratios (K) between 1/3 and 2/3 should be used in the design.

The soft to stiff silty clay is underlain by ten to 30 feet of tough to hard silty clay and/or clayey silt. The latter ranges in unconfined compressive strength from 1.0 to 6.0 tsf. Water content ranges from 12 to 22 percent. This material is cohesive enough to stand unsupported for rather a long period of time; however, pockets and seams of medium to dense silt, sand, and/or gravel are present in this layer, and if saturated, may tend to flow into any excavation. In a tunneling operation, little difficulty will be encountered in the silty clay or clayey silt; the occasional pockets or seams of coarser-grained material, however, may permit loss of air. Air pressure will be necessary to prevent movement of saturated coarser-grained pockets and seams and to insure that movement of the silty clay or clayey silt is kept to a minimum. Tunneling machines have worked successfully in this layer. Care will be needed to insure that no voids are left behind temporary linings or final structures. The possibility of such voids will influence design criteria. In open cut operation, there will be little need for steel sheet piling to support the sides. If a soldier pile-and-lagging system is used, lagging will not have to follow excavation closely except where coarser-grained pockets and seams are encountered. Special care will be necessary to avoid over-excavation. Design criteria should be similar to those discussed for soft to stiff silty clays. If reasonable precautions are taken during construction, excavation in this material should not damage adjacent structures.

The tough to hard silty clays are underlain by ten to 50 feet of hardpan--dense sandy clayey silt interspersed with seams and layers of dense silt, sand and gravel and with fractured limestone and/or boulders. This material ranges in unconfined compressive strength from 6.0 to 15.0 tons per square foot. Water content ranges from five to 23 percent. If dry and/or cemented, this material is quite brittle and capable of standing unsupported for long periods of time. If wet and/or porous, however, this material may be subjected to between 25 and 40 pounds per square inch of water pressure. This usually results in an immediate flow of soil and water into the excavation to a height of 60 feet or more. In the Central

Area of Chicago, unfortunately, the wet and/or porous condition is commonly encountered. Tunneling will require air pressures in excess of 25 pounds per square inch as a precaution. In addition, the variable nature of this layer will necessitate the use of hand excavation. The possibility of encountering fractured limestone or boulders in the tunnel heading threatens further difficulties. Open cut operation with steel sheet piling would entail less risk during excavation. It is unlikely, however, that sheet piling could be driven through this layer. In this hardpan layer with interspersed granular material, use of soldier piles and lagging would have the same inherent dangers as a tunneling operation in that the sides and bottom would be unsupported temporarily before the lagging was placed, during which time the soil-water mixture might flow into the excavation. A blow-out or flow of the soil-water mixture into the excavation would endanger workmen and damage adjacent structures founded above or in this layer. Construction of a subway in this material by any conventional method would be difficult and thus expensive. In establishing the subway alignment and profile, this layer has been avoided except for a single tube section approximately 200 feet long on Franklin Street south of Van Buren where the north-bound tube will have to pass under the existing Congress Subway.

The Niagaran limestone comprising bedrock in the Chicago area underlies the hardpan layer. Generally, the upper five to 20 feet is highly weathered and fractured, and contains horizontal and vertical clay or silt seams varying in thickness from one to 24 inches. Below the weathered zone, a generally massive and dense dolomitic limestone is encountered for the next 50 to 100 feet."

The existing subway system has been constructed without substantial harmful impact on the subsurface environment of the area or on the foundations of structures in the area. This provides assurance that the construction of the proposed alternatives can be accomplished without a detrimental effect on the geology of the area of the foundations of buildings in the area.

The proposed system is not expected to have any long term detrimental effect on foundations or geological structures in the Chicago area. Seismic considerations are not of importance, since Chicago is in Zone 1 where earthquakes are very rare.

The steps which will be taken to protect the foundations of adjacent structures and prevent disruption of underground utilities during cut and cover operations are detailed on pages 136 through 139 of Volume 1 of the 1968 Transit Planning Study.

An extensive discussion of the foundation support and underpinning problems expected to be encountered during subway construction are detailed on pages 162 through 166 of the Transit Planning Study.

L. Water Quality and Hydrology

The control of leachates, turbidity and the mitigation of disruption of littoral drifts and circulation patterns in Lake Michigan during landfill operations associated with subway spoil disposal is discussed in the section on solid waste disposal. This subject is also addressed in the extensive "Lakefront Land Development Alternatives Report" submitted to the Chicago Department of Development and Planning on 18 September, 1973 by Knoerle, Bender, Stone & Assoc. Inc. It is clear that the filling operation can be accomplished with no deterioration in the water quality of Lake Michigan (which is reviewed in the "Progress Report on Water Quality of Lake Michigan Near Chicago" prepared by the Chicago Department of Water and Sewers in 1972) The filling operation should have a generally beneficial long term effect on aquatic biota in the Lake, with the loss of benthic habitat being compensated by the increased habitat for fish along the shorelines of the filled areas.

Construction of the proposed subway will have no effect on ground water except possibly in the 200 foot section which dips into the hardpan to pass beneath the Congress subway. It is possible

that an aquifer may be encountered in this area. If so, provisions will have to be made to prevent the flow of soils and water into the excavation. If tunneling is used, air pressure will be required to control the water and soils.

When the final design of the tunnels for subway crossings under the Chicago River is undertaken, special emphasis will be laid on minimizing the short term water pollution effects during construction as well as any potential interference with navigation. One of the methods currently under consideration for constructing the river crossing is discussed in the 1968 Transit Planning Study. It envisions the emplacement of a temporary clay blanket with a maximum depth of 10 feet on the river bottom above the subway alignment to obtain the necessary 15 feet of cover required for tunneling operations. This is required because constraints on the vertical alignment of the subway necessitates locating the top of the subway tubes within 5 feet of the river bottom. If this method is used, a minimum navigation depth of 12 feet of water would remain and river crossings would have to be constructed during the winter months when barges requiring a navigation depth of only 9 feet are the sole traffic on the river.

When the final design of the subway river crossings has been completed, the Army Corps of Engineers and other concerned federal,

state and local agencies will be approached for the permits and clearances required before construction can begin. Furthermore, instructions to contractors involved in constructing the subway river crossings will require compliance with the following requirements:

> -control any increase in turbidity or suspended solids during excavation, dredging and/or filling of the river which may degrade water quality and damage aquatic life outside the immediate project area. According to the Water Pollution Regulations of the State of Illinois, this requires that no unnatural turbidity be produced (i. e. any turbidity which causes visible contrast with the existing natural appearance of the water is unacceptable.) This may necessitate the use of "turbidity curtains" (floating booms carrying suspended plastic sheeting).
>
> -establish and carry out a program for immediate removal of debris to prevent the accumulation of unsightly, deleterious or potentially polluting material in the river.
>
> -formulate specific plans for the prevention, containment and cleanup of any spillage of oils, fuels or other polluting materials into or along the banks of the Chicago River and present these plans for approval before construction is initiated.
>
> -take any steps necessary to prevent materials from unprotected slopes, construction refuse and stored materials from washing into the river as a result of cleanup activities, surface runoff, flooding or gravity flow.

M. Biota

a) Existing Conditions

The areas directly affected by the project are predominantly highly urbanized areas characterized by low species diversity and already heavily impacted ecologically. Aside from man and his domesticated pets, there are few terrestrial species and they are mostly considered noxious (e. g. rats, mice and feral cats). Bird life is typical of that found in urban areas in the northern part of the Midwest and should be essentially unaffected by the proposed system.

The areas indirectly affected by the proposed transit lines include some offshore areas in Lake Michigan where subway excavation spoil may be used as fill in accordance with the Chicago Lakefront Plan. The aquatic community in this area was studied extensively in the early 1960's and characterization of the situation in a 1965 U.S. Public Health Service "Report on Pollution of the Waters of the Grand Calumet River, Little Calumet River, Calumet River, Lake Michigan, Wolf Lake and their Tributaries" is probably still accurate. This report states:

> "Between 1961 and 1963 more than 450 bottom dredgings were made in the lake area from Wilmette, Illinois to Indiana Dunes State Park and lakeward about 30 miles. The lake was divided into sectors bounded by 15 minute lines of latitude and longitude, and the numbers of organisms per

square foot and the kinds of organisms comprising the bottom animal communities were determined for each sector.

"The bottom animal communities in this area of Lake Michigan were composed of only a few different kinds of organisms. Sludgeworms (Oligochaeta) and aquatic scuds (Amphipoda) were more numerous, but bloodworms (Tendipedidae) and fingernail clams (Sphaeriidae) were sometimes abundant. Of these four different kinds of animals only one, the scud, is sensitive to pollution, preferring a clean sand or gravel bottom and relatively clear water. Where the lake bottom is subjected to deposits of organic materials the conditions are more favorable for sludgeworms, bloodworms, and fingernail clams. Along the Chicago shoreline, pollution tolerant organisms averaged about 1,000 per square foot of lake bottom and pollution intolerant forms averaged about 50 per square foot. This increase in pollution tolerant organisms is attributed to an organic sediment that is a more suitable habitat for organisms such as sludgeworms and less favorable for clean water associated organisms.

"The organic materials discharged in the Calumet Area, and carried by the streams into Lake Michigan, have created a condition deleterious to aquatic life. This is indicated by the predominance of sludgeworms over kinds of organisms beneficial to fish. The aquatic scud is one of the principal food organisms for desirable species of Lake Michigan fish, particularly the whitefish, lake trout and yellow perch. In this area where scuds are scarce there is inadequate food for large populations of desirable fish. Trash fish like carp, buffalo, and suckers usually predominate in a lake area where the bottom sediment is organic.

"Pollution of this large area of Lake Michigan is especially serious because it is practically irreversible. That is, the conditions that now exist will not necessarily improve with the cessation of present waste discharges. In a stream where there is a current moving in one direction there is a tendency for the bottom deposits to be scoured away. However, lake currents are weak and shifting, and bottom deposits might move only slightly over a long period of time.

b) Impact of the Proposed System and Various Alternatives

1) Short term impacts

There will be some short term disturbance of man, his domesticated animals and other terrestrial and avian species caused by the noise and air pollution created by demolition and construction operations. Furthermore, demolition work may result in the disturbance and destruction of parts of the habitats of some individuals of the terrestrial and avian species which share the urban environment with man. In particular, birds may be temporarily driven away from the construction areas.

The filling operations which may be associated with the project will also have some short term effects. In particular, the benthic habitat will be destroyed in the filled areas of Lake Michigan, and the benthic organisms will be killed. It is possible that there will be some disturbance of shortbirds and waterfowl. Turbidity, which could be harmful to fish and benthic organisms, will be tightly controlled during the filling operation. Interference with the littoral drift currents will also be controlled to prevent disruption of inshore habitats.

2) Long term effects

The major long term effect of the project will be improved environmental quality for the dominant species, man. Noise will be reduced and safety and air quality will be improved. The reduction

in air pollution may be beneficial to avian species.

The filling operations associated with the project will provide badly needed open space for the use and enjoyment of man and his domestic animals. The shoreline of these filled areas will provide cover and aquatic plant growth for fish. The filled areas should also provide habitat for waterfowl and shorebirds.

Finally, it should be noted that the proposed sytem conforms with the development plans for Chicago, which are planned modifications of the environment and ecology of the Chicago area held desirable by the citizens of that area.

N. Safety

a) Existing Conditions

Automobile accidents are the main impact of transportation on community safety. The Standard Summary of Motor Vehicle Traffic Accidents prepared by the Traffic Records Section of the Chicago Police Department show that 284 persons were killed, 40,818 persons were injured and there were 149,062 reported property damage accidents in automotive traffic in the City of Chicago in 1972. The Chicago Area Transportation Study indicates that there were $8,942 \times 10^6$ vehicle miles of travel in the City of Chicago in 1972. These figures yield the following accident rates per million vehicle miles of travel in Chicago in 1972:

Persons killed	$0.03/10^6$ VMT
Persons injured	$4.6/10^6$ VMT
Property Damage accidents	$17/10^6$ VMT

In 1972 there were 9 fatal accidents when people were hit by Chicago Transit Authority Rapid Rail Trains, and CTA calculates the fatal accident rate as 0.018 fatalities per 100,000 miles of rail car travel. During the same period, 595 passengers were injured while alighting from or boarding CTA trains, and CTA calculates the personal injury accident rate as 1.21 passenger

injuries per 100,000 miles of rail car travel.

a) Impacts of Proposed System and Alternatives

1) Short term alternatives

The demolition and construction work required to develop the proposed system will undoubtedly lead to some localized traffic congestion, restrictions of vehicle and pedestrian access and the existence of short term conditions more hazardous than would otherwise occur. This may result in some additional pedestrian and vehicle accidents.

Demolition and construction workers will be protected by the provisions of the Occupational Safety and Health Act. Nevertheless, past experience indicates that a few construction accidents will occur.

However, from the viewpoint of safety, the long term benefits of the proposed system far outweigh the short term disbenefits.

2) Long term effects

The do-nothing alternative carries the burden of a larger number of traffic fatalities, injuries and property damage accidents than the proposed system. From the standpoint of the transit system alone, the existing system is old and its safety performance can be expected to deteriorate with age. Furthermore, the crossings at grade on the existing system represent a safety problem of considerable magnitude. There is the possibility, however remote, of a failure in existing train control and safety systems leading to

a collision between trains on the existing elevated system. The elimination of these rail crossings at grade, and with them the possibility of a calamitous collision between trains, is a major beneficial environmental impact of the proposed system.

The proposed system will result in less traffic accidents and less traffic congestion for a given level of economic activity than would occur with the do-nothing alternative. It has been estimated that the proposed system will carry a number of diverted passengers in 1990 who would otherwise be responsible for about 1.2×10^9 vehicle miles of travel in 1990. Assuming the accident rates applicable in Chicago in 1972 remain applicable in 1990, this figure implies that the proposed system will be responsible for saving:

36 lives
5,500 injuries, and
20,000 property damage accidents

from motor vehicle traffic accidents in 1990, as compared to the do-nothing alternative.

The diverted passengers carried on the proposed system will be responsible for about 1.7×10^9 person miles of travel in 1990. Assuming all this travel is on rail rapid transit, and converting the CTA accident rates by assuming an average occupancy of 20 passengers per transit car, the estimated accidents suffered by these passengers in 1990 would be 17 fatalities and

1,000 personal injury accidents, for a net saving of 19 lives and 4,500 personal injury accidents. So, the proposed system will be responsible for a considerable savings of life and limb .

Depending on the weather, it is estimated that the proposed system will save one or two million pedestrian street crossings (one pedestrian making one street crossing) over the do-nothing alternative. This will reduce vehicle-pedestrian conflicts, speeding up traffic movements through intersections and reducing the number of pedestrians struck by vehicles while crossing the street.

O. UTILITIES

Pipes, conduits, sewers and other subsurface structures will have to be accommodated during construction of open cut sections of the Loop Subway and Distributor Subway. This can be done in one or a combination of several ways. A given facility may be temporarily relocated outside the construction area. The facility will be put back in its original location when the trench is back filled. This will be the procedure followed in the Loop area , for sewers and water mains in order to maintain fire protection, as well as services to adjacent buildings. This procedure will also be followed in all locations where gas lines are unearthed-due to the danger of maintaining gas lines below wood decking. Relocation of utilities will be completed "live", i.e. utility services will be maintained for surrounding buildings at all times during the work, or will be done during hours when service is not needed.

However, in many locations, it will be possible to suspend utilities either from the decking over the excavation or from steel bracing within the trench.

In addition, service utilities such as street lights, traffic signals, pneumatic tubes, and police call box and fire alarm box cables will be kept in continuous operation during construction.

P. ACCESS TO AND PROTECTION OF ABUTTING PROPERTY

The District recognizes its obligation to provide access to abutting property. Pursuant to this, the District will require that the Contractors provide and maintain every necessary access to adjacent buildings and property at all times. When access for the delivery or removal of commodities or refuse from any adjacent property is temporarily disrupted due to construction, the Contractor shall assist the property owner or occupant in the handling of such materials, including all refuse to be removed by the Department of Streets and Sanitation, Bureau of Sanitation. These materials shall be taken by the Contractor to or from the nearest accessible point that, in the opinion of the Engineer, is convenient for handling.

The District requires the Contractor to underpin all buildings that require protection during the subway construction. Construction will necessitate the underpinning of several buildings and other structures in the following categories: structure under which the subway will be tunneled; structures which extend over the excavation to such an extent that they will have to be temporarily supported during construction and permanently underpinned; structures immediately adjacent to the subway which will have to be carried on underpinning walls

braced to act as retaining walls supporting the sides of the excavation; and structures affected by substantial lowering of the water table.

Q. Traffic

The Staging Plan in the interim CCATP report specifies the location and duration of potential traffic disruption due to Project construction.

Cut and cover subway construction will necessitate the closing of affected street segments and the diversion of traffic on those segments to other routes. Construction related traffic will increase on those streets serving the construction area. With typical two-way daily traffic volumes of 15-20,000 vehicles on those streets to be disrupted by Loop and Distributor subway construction, short term congestion on alternative routes will be considerable.

In order to minimize traffic disruption from cut and cover construction, cuts will be made in segments. As soon as is possible, wood decking will be placed above the cut, providing a temporary street surface, while at the same time allowing further excavation and construction below street level. This segmented approach to the making of initial cuts will require that only small portions of a street be closed at a given time. Temporary congestion on alternative routes should be reduced, and those streets impacted by construction should return to near normal operation more quickly.

Throughout the Project, the District will maintain liason with the Department of Streets and Sanitation, Bureau of Streets, and the Fire and Police Departments to insure that emergency vehicles will have unimpeded access at all times to areas impacted by the construction.

The traffic restrictions which will be imposed on the contractor will be substantially as follows:

1) The Contractor must prosecute his work under a fully decked street surface except for access openings. Such openings can be made with the express approval of the District. Decking is to be placed only in off peak hours.

2) The maximum number of traffic lanes are to be provided in peak periods.

3) It will be the Contractor's responsibility to remove and relocate traffic signs, signals and street lights, and to provide temporary fire hydrants as required to meet existing safety standards.

4) The Contractor will be required to maintain a pedestrian sidewalk. Typical daily (7 A.M. - 7 P.M.) pedestrian volumes on Loop subway and Distributor streets averages approximately 22,000 with values reaching a high of 56,000.

5) The Contractor will not be permitted to close off cross-street traffic except with the permission of the District and the Department of Streets and Sanitation, Bureau of Streets.

The District will coordinate with CTA to provide adequate transit service to the impacted streets during the period of construction.

V. UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A) Physical Environment

The unavoidable adverse environmental impacts of the proposed rail transit system are mostly short term local effects which will occur during demolition and construction work and can be mitigated by careful attention to design and construction details and close supervision of contractors. These unavoidable adverse impacts can be discussed under the following headings:

Noise and Vibration

The unavoidable noise and vibration generated during demolition and construction operations can be mitigated by care on the part of the contractors and the use of the quietest possible equipment, in compliance with the Chicago Noise Ordinance.

There is the possibility of unavoidable noise and vibration created by operation of the proposed system which may adversely affect the following sensitive institutions:

(i) Distributor System

-Northwestern Medical School and Wesley Research Hospital (North Fairbanks between East Superior and East Chicago)

-Floyd E. Patterson Memorial Building of Passavant

Memorial Hospital
(North Fairbanks between East Huron and East Superior)

-Veterans Administration Research Hospital
(North Fairbanks between East Erie and East Huron)

-Shubert Theater
(22 West Monroe)

-Monroe Theater
(57 West Monroe)

(ii) Loop System

-Mary Thompson Women and Children's Hospital
(1600-1610 West Maypole)

-Chicago Eye, Ear, Nose and Throat College and Hospital
(231-235 West Washington at Franklin)

-Chicago Kent College of Law
(12 North Franklin)

-St. Mary's Roman Catholic Church
(21-39 East Van Buren)

-United Artists Theater
(33-45 West Randolph)

-Woods Theater
(54 West Randolph)

-Catholic Order of Forresters
(301-307 West Madison at Franklin)

-Washington-Hermitage Housing Project
(1701-1725 West Lake)

-Henry Horner Home Housing Project
(1735-1759 West Lake)

-Chicago Housing Authority Project
(1615-1687 West Lake)

-Cabrini Housing Project
(Larrabee Street)

To mitigate any undesirable effects in the vicinity of these buildings, the proposed system will be designed to meet the appropriate

Institute for Rapid Transit noise and vibration criteria for the various building types. Where it is necessary to meet these criteria, the use of floating slab construction, or other noise and vibration isolating design features which may be needed to meet the criteria, will be specified. There is no indication that the IRT noise and vibration criteria cannot be met.

Generated and diverted rail passengers will be unavoidably exposed to "on board" and "in station" train noise which they would have escaped if they rode in buses or autos. However, it is not clear that this will be an adverse impact in every case, since traffic noise levels can be quite high. To mitigate this noise exposure for passengers, the existing rolling stock is being replaced by quieter cars and the proposed system is being designed and constructed to meet the IRT noise and vibration criteria.

Air Pollution

The airborne dust and dirt generated during demolition and construction will constitute an unavoidable short term adverse environmental impact. This impact will be mitigated by performing this work in the shortest possible time and by insuring that the contractors employ measures to control nuisance air pollution as required in Chapter 17 Section 2-14 of the Chicago Code. It must be remembered that these

unavoidable adverse short term air pollution effects are more than counterbalanced by long term reductions in vehicular pollutant emissions and the provision of transit capacity which would permit the introduction of restrictions on vehicle use in the central area if this ever becomes necessary to maintain air quality within the Federal standards.

Energy and Petroleum Resource Consumption

Some energy and petroleum resources will unavoidably be consumed during demolition and construction work necessary to create the proposed system. Since energy and petroleum resource costs are a direct charge on the contractor and can cut into his profits, there is a strong motivation to minimize the consumption of these resources, and implementation of the proposed system will lead to significant long term reductions in energy and petroleum resource consumption.

Safety and Traffic Congestion

There will be some unavoidable adverse effects on safety and traffic congestion during the demolition and construction phases of the project. These effects may include accidents incurred by demolition and construction workers, additional traffic accidents resulting from hazardous conditions occurring during demolition and construction and traffic congestion and delays. Strict safety measures by contractors, as required in the Federal Occupational Safety and Health Act, will be necessary to minimize accidents befalling workers. Efforts to insure that construction

is completed as quickly as possible, with minimum interference to pedestrian and vehicle traffic and essential services, will be necessary to minimize the delays, congestion and the increased accidents caused both by congestion and the hazardous conditions attending demolition and construction work.

Disposal of Excavation Spoil

It is planned to dispose of excavation spoil in land fill sites in off shore areas of Lake Michigan near Chicago, in accordance with the Chicago Lakefront Plan. This will lead to the destruction of some benthic organisms and habitat. However, this loss should be more than offset by the provision of badly needed open space and habitat for aquatic biota, waterfowl and shorebirds very near to the heavily built up areas of downtown Chicago. Furthermore, this is probably the least environmentally and ecologically disruptive disposal available in the area.

Potential adverse impacts on water quality and biota will be mitigated by the use of impermeable dikes to contain the fill during consolidation, an internal diking and filtration system if required to prevent the release of harmful leachates into the lake waters and the use of turbidity curtains where needed to control turbidity in the Lake .

Visual Impacts

The unavoidable visual intrusions arising from demolition and construction work will be mitigated by insuring that these operations are completed as quickly as possible.

B. Social Environment

These are of three types:

a. Relocation of homes or work places and the resultant necessity of those so affected to re-establish themselves. One of the primary considerations in the selection of alignments has been the maximum utilization of existing rights-of-way in order to reduce the number of relocations. However, links between the existing elevated structure and the proposed subways, as well as minimum radii of curves in heavily built-up areas will cause some unavoidable land takings.

b. Inconveniences caused during construction to people exposed to noise, dust and debris, as well as disruption of normal circulation patterns and the necessity of negotiating temporary pavements and walkways. During construction, all practical ameliorative measures will be taken to minimize disruptions.

c. Dislocation of those with weak economic resources brought about by private development triggered by completion of the project. One of the main objectives of this project is to increase land values in Chicago, especially in its central areas. The actual increase will not be brought about by the project itself, but by market forces. In the strictest sense then, eco-

nomic dislocation cannot be attributed to the project. It is hoped, however, that the same commitment that has led to the formulation of this project will also be applied to ensure that economic development for the City is translated into economic improvement for all those affected by this project.

C. Economic Environment

Introduction

The construction of the proposed transportation improvements included in the Central Area Transportation Plan will cause intermediate circulation disruption and resulting short term impairment to the operation of certain commercial enterprises. The documented experiences of other major metropolitan areas, for example, San Francisco and Washington, D.C., clearly demonstrate that these potential economic losses can be minimized through enlightened construction practices and advance planning of operational accomodations by the private sector.

1. Nature of the Problem

High volume retail sales operations, e.g. restaurants, specialty shops, department stores, require adequate parking and pedestrian access. The construction of new elements of a regional rapid transit system, primarily subway components, necessarily alters vehicular traffic patterns, restricts on-street parking and creates physical obstacles to pedestrian access to commercial buildings. These disruptive impacts primarily occur on the streets where construction takes place. Office buildings whose tenants have flexible locational requirements, e.g. employment, advertising and travel agencies, may experience a decline in occupancy due to

the noise and circulation impacts. Hotel facilities are likely to experience a similar impact.

2. Response and Experience of Other Cities

Washington, D.C. and San Francisco have experienced several years of accommodation to major construction acitivy related to a rapid transit system implementation. Initially, retail establishments located on major subway routes, e.g. Connecticut Avenue and Fourteenth Street (Washington, D.C.) and Market Street (San Francisco) were disrupted. Especially hard hit were marginal pedestrian retail outlets. Restaurants and cocktail lounges also lost considerable evening hour trade. Large retail establishments such as Woodward and Lothrop (Washington, D.C.) and Roos-Atkins (San Francisco) eventually were able to increase retail sales volume during this construction period. This was achieved through advertising and new street signing to educate patrons about alternative parking locations and access routes.

In both cities, the central area absorbed large increases in office space construction during the rapid transit construction period. In certain instances, for example K Street (Washington, D.C.), interim decline in occupancy occurred in a small number of non-prestige office buildings.

Twenty-four hour construction schedules and other engineering construction techniques have kept the major arterials open during business hours in both cities. These efforts have minimized the extent of the realized disruption impact. In addition, after the initial construction period, these cities' residents have made a general adjustment to the rapid transit construction activities.

3. The Chicago Situation

In the case of Chicago, all the subway alternatives would cause the greatest amount of disruption. This opinion is based on the duration of the construction activity and the past experience of other cities with cut and cover construction programs. Chicago is less reliant on vehicular employment access than either San Francisco or Washington. High levels of disruption have also recently been experienced by other major facility construction in the Central Area of Chicago. For these reasons, we believe the net adverse impact on the Central Area would be relatively less than that experienced by Washington, D.C. or San Francisco.

4. Projected Disruption Impact

In our analysis we distinguished between each of the alternatives in relation to the streets on which construction acitivity would take place and the duration and construction procedures that would be required. In Chart 1, in the Appendix, we present a Central Area Street analysis of the adverse economic impacts of the proposed

distributor system. These adverse impacts would be relevant to alternative 4 including Franklin Street. Chart 2 depicts similar types of impacts relating to alternative 6. Chart 3 depicts alternative 11 with its major distributor emphasis along Randolph, Monroe and Michigan, combined with subway alignments along Franklin and Van Buren.

The major observations in ITRP's disruption analysis are:

- There would be three basic types of operative impairment as a result of the implementation of future transportation improvements to the Central Area of Chicago. These are: (1) reduction in accessibility; (2) noise and dirt pollution; and (3) traffic flow diversion and congestion.
- The adverse economic impacts relating to the operational impairments would include: (1) minor reduction in tenant occupancy at office buildings; (2) reduction in customer patronage; and (3) a probable decline in retail sales volume.
- If the duration of the construction is less than six months, no occupancy decline would be likely.
- If there is at least one year of construction activity certain non-prestige office buildings will in the option of ITRP, experience a decline in occupancy.

It should be noted that this specific city block scale analysis is predicated on the highest level of disruption that would result from a subway type of construction within the Loop area. The major distinction between all considered alternative schemes is the structure as in scheme 12 within the Loop area will have approximately 25 - 30% of the disruptive effect of the subway alternatives indicated in Charts 1 - 3. This opinion is based on the major differences in the construction periods, i.e. 4 - 6 months versus 18 - 24 months. The disruption impact of the removal of the El structure, without any additional construction is not considered significant.

VI. Irreversible and Irretrievable Commitment of Resources

The first kind of irretrievable and irreversible commitment of resources involved in implementing the proposed system is the raw materials, energy, technical and manual labor employed during design and construction of the project. The necessary resources are available in the Chicago area and the social desirability of committing them to the project is manifested by the City of Chicago's decision to proceed with development of the proposed system.

The second type of irreversible and irretrievable commitment of resources which the proposed system involves is the use of natural and man-made resources which cannot be or are unlikely to be replaced once exhausted and which would be directly affected by the construction and operation of the loop and distributor systems.

Such commitment of resources includes the permanent acquisition of certain land parcels and the partial destruction of an existing freight tunnel system.

Two segments of the Project will have irreversible impact on existing land resources:

1) Aerial structures and a tunnel portal in the 1700 and 1800 blocks of W. Lake will require permanent acquisition of land currently in commercial and residential use. Configuration of the portal and aerial structures will not permit redevelopment of these parcels in their previous use. However, adverse environmental impact can be mitigated in part by imaginative use of land beneath the aerial structures. An example of this is the system of linear parks developed beneath aerial segments of the Bay Area Rapid Transit System.

2) Aerial and at-grade structures on the southern extension of the loop subway will require permanent right-of-way on land currently occupied by rail yards. The alignment of this Project segment follows the median at the proposed Franklin St. connector to the Dan Ryan Expressway. This transit segment requires no additional land above that required for the expressway, while providing high capacity service to a busy transportation corridor, and to proposed developments in the south loop area.

The McCormick extension of the Distributor will use right-of-way currently occupied by rail lines owned by the Illinois Central Railroad. Since this property is currently used for transportation

purposes and since the potential for proposed development on air rights would not be affected by the existence of the McCormick Line, this does not constitute any additional irreversible and irretrievable commitment of resources.

All other segments of the Loop and Distributor Systems are to be built underground. Although disruption of land uses may occur during construction of these segments, permanent surface right-of-way will not be required, allowing the impacted land to be redeveloped for other productive uses.

Construction of underground segments will destroy portions of an existing unused freight tunnel system. The resulting disconnection of this freight network will preclude future use of the tunnels as a distribution system.

Another committment involves the filling of off shore areas in Lake Michigan. This irreversible and irretrievable committment of open water and benthic habitat must be balanced by the fact that the landfill provides badly needed open space on the lakefront close to the heavily built up areas of downtown Chicago. Furthermore, this committment of resources is in conformity with the Chicago Lakefront Plan for developing the offshore areas in Lake Michigan.

VII. Relationship Between Local Short Term Environmental Impacts and the Maintenance and Enhancement of Long Term Environmental Quality and Productivity

Physical Environmental Impacts

Consideration of the balance between local short term environmental impacts and the maintenance and enhancement of long term environmental quality favors the proposed system. Construction of the proposed syst em will entail a small increase in local short term environmental impacts over those expected if nothing is done. However, the development of the proposed system will lead to the enhancement of long term environmental quality and these long term benefits should far outweigh the short term adverse environmental effects.

The trade-offs between the short term environmental impacts, which are largely adverse, and the long term environmental effects, which are generally beneficial, are as follows:

- a slight increase in community exposure to noise and vibration during construction

  vs

  a substantial reduction in long term community exposure to automobile and transit related noise and vibration.

- exposure to airborne dust and dirt during construction and demolition

  vs.

  a decrease in long term vehicular pollutant emissions and provision of transit capacity which will allow substantial restriction of vehicular movement in the central city area if this is ever needed to maintain air quality.

- a modest expenditure of energy and petroleum resources on demolition and construction

  vs.

  significant reduction in long term energy and petroleum resource consumption.

- the possibility of construction-related accidents and traffic congestion arising from construction activities

  vs.

  improved transit system safety, a reduction in traffic fatalities, injuries and property damage accidents and the possibility of some alleviation of vehicular traffic problems from an area-wide standpoint.

- the disposal of subway excavation spoil in Lake Michigan (in accordance with the Chicago Lakefront plan) which will destroy some benthic habitat and biota and possibly cause some short term adverse effects on local water quality

  vs.

the provision of additional needed open space close to the urban heart of Chicago.

- the short term visual intrusion associated with demolition and construction.

vs

the improvement in visual outlook produced by the elimination of the unsightly existing elevated system.

All of these trade-off considerations favor the implementation of the proposed system.

VIII. MODAL ALTERNATIVES TO PROPOSED PROJECT

Introduction

An extensive analysis of passenger service concepts for the CCATP project was carried out in the Interim Report prepared by American Bechtel, Inc. (Nov. 1973)

Four general categories of modal alternatives to proposed project are applicable:

A. Do nothing
B. Passenger Conveyors
C. Grade-Separated and Segregated Transit Service
D. Conventional Rapid Transit

Summary Analysis of Service Concept

A. Do-Nothing Alternative

Before discussing the implications of the do-nothing alternative, an examination of existing traffic conditions and transit facilities in the central area is warranted. This examination is presented in two parts; one dealing with service to the central area, and the other dealing with service to areas within the central area proposed to be served by the Distributor.

1. Central Area Service

Existing traffic and transit conditions to the Central Area of Chicago are similar to those found in most large cities

in the U.S. Trends in recent years have shown a decline in patronage of the public transit system and an increase in auto ridership. Buses have shown the sharpest decline, rapid transit has declined slightly while suburban railroads have shown slight upward trend. Historical modal split percentage figures reveal that automobile trips to the downtown area have increased by 19.3% while the total number of trips has decreased by 7.5% between .

The portion of the rapid transit system with the most serious problems is the elevated loop in downtown Chicago. Elevated Loop lines are carrying about 52,000 passengers at the present to the Loop area during the average weekday and have enough capacity to double that number if demand warranted. The existence of that structure however, which is aesthetically unacceptable, noisy, and even structurally ailing is causing tremendous obstacles for genuine development of the downtown area and consequently for attracting more passengers to the CTA system. A small number of present potential users of the existing system in the downtown area may be diverted to other less efficient modes of transportation because of system's safety and security consideration.

Others may be diverted by inconvenience inherent in transferring between existing elevated loop and subway and bus lines. Due to poor service levels a larger number of present potential users may not be making the trip downtown at all (basically shoppers and those seeking services), if they have alternative locations of accomplishing their objective; even with a lot more cost to themselves and to the environment.

Auto traffic patterns in the Central Area show that the streets are operating near capacity, especially at peak periods. A 1967 City of Chicago Department of Streets and Sanitation Study revealed that most all major arterials in the Central Area have average daily traffic (ADT) volumes over 10,000 vehicles per day. The streets with the largest volumes in a north-south direction are Michigan, Lake Shore, LaSalle and Wacker. East-west streets with the largest volumes are Monroe, Adams, Roosevelt, Ohio, Ontario, and Wacker. Likewise, freeways near downtown Chicago are operating near capacity levels especially during peak periods. The Kennedy Expressway near downtown carries an estimated 206,000 vehicles per day. Stevenson, Eisenhower, and Dan Ryan expressways have almost as much traffic on them.

The "do-nothing" alternative implies continuation of the present deteriorating level of transit service to users of the system. Passenger service elements such as security, operating safety, provision of adequate facilities for the handicapped, and intra-system transfers can be improved over present levels, albeit at substantial cost. It is doubtful that such costs would (or should) be committed to a structurally inadequate system that sooner or later needs to be replaced. Patronage on the "L" system will deteriorate moderately with all other passenger service elements, as parking lots and garages proliferate around the periphery of downtown. Depending on the future time frame during which nothing will be done to improve or replace the existing system, service levels will deteriorate to a moderate or substantial degree.

2. Distributor Service

The do-nothing alternative implies that the proposed Distributor system will not be built and present service levels will be continued. The proposed system is based on performing the following major functions:

- Distribute commuter railroad passengers arriving at Union, CNW and IC stations to their final destinations along Monroe St. in downtown and to N. Michigan Avenue locations.

- Connect railroad passengers with CTA rapid transit system in loop area.
- Connect CTA rapid transit and bus passengers with their final destinations along Monroe as well as on N. Michigan.
- Serve the transportation needs of the U. of I. student body and faculty.
- Connect the Soldier Field and McCormick Place with the extensive transit system available downtown, thus making these places accessible to most Chicago residents.
- Provide a fast, convenient transport facility for internal circulation along the Monroe corridor and between downtown and the N. Michigan Avenue area.
- Serve the transit need of the residential population of N. Michigan Avenue area.
- Connect the expanding Northwestern University Medical School and hospital facilities with the CTA system in downtown and thus to CTA Chicago service area thus availing the services of these institutions to Chicago residents.

Existing transport modes performing above functions

includes the use of shuttle buses, combined with taxis, autos, private buses and existing rapid transit. The methods now used to perform the eight listed functions, and therefore, the methods implied in the do-nothing alternative are as follows:

a. Distribution from Commuter Railroad Stations

The Union Station is served by six shuttle bus lines, A.M. and P.M. peak hour headway per line ranges between 1.5 and 5 minutes. Off-peak headway on these lines varies between 6 and 8 minutes, with two of the lines not running in off-peak hours.

The C & NW station is served by ten shuttle bus routes, two of which also serve Union Station. A.M. and P.M. peak hour headways range between 2.2. minutes and 10 minutes. Off-peak headways range between 8 and 12 minutes. In addition, due to the proximity of the C & NW station to the Clinton Street Station of CTA's Lake Street rapid transit line, some commuter railroad passengers access the Loop area by rapid transit.

Present patronage figures from CTA reveal that

about 9,400 commuter railroad passengers board shuttle and regular buses at Union Station and C & NW on an average weekday. Since the present average daily arriving or departing commuter rail passengers at these two stations is about 75,900, 88.1 of all rail passengers currently walk to their destinations in the Central Area.

The Illinois Central Station is not served by a special shuttle service but is in close proximity to four regular bus lines on Michigan Avenue whose routes enter the Loop area. Detailed ridership figures are not available regarding the number of commuter rail passengers from I.C. Station who use these four bus lines to access the Loop. However, it would not seem unrealistic to assume that the number of commuters that walk would not differ greatly from the 90% level of the commuter rail passengers walking from Union and C & NW Stations.

b. Service to North Michigan Avenue Area

The North Michigan Avenue area is a concentration of commercial, medical, and residential activities.

There are presently 30,000 employees in this area, with large increases predicted for the future. One of the largest trip generators is the Northwestern Medical School and adjunct hospitals, where 22,000 trips are expected by 1985, including 6,000 daily outpatients. An additional large number of trips is generated in the area by retail stores, hotels and office buildings along Michigan Avenue and the high and low-rise apartments located throughout the area.

CTA buses currently provide most of the public transportation service to and from the North Michigan Area. Two shuttle bus lines operate along Michigan Avenue, together with three regular lines from the loop. A third shuttle regular bus line operates north along Michigan Avenue from Union Station and the Loop area, turning east at E. Ohio Street and does provide service along Fairbanks Court and to the Medical Center Complex.

Percentage of trips made in the North Michigan area by public transit is unknown, but there is undoubtedly a large number of auto trips as evidenced by street

congestion and difficulties in finding parking accommodations in the area.

c. Service to U. of I. Circle Campus

Presently there are approximately 20,000 students on campus, with significant increases anticipated in the future. CATS predicts that 14,000 rapid transit and commuter rail trips will be made to the Circle Campus by 1975. This figure is predicted to increase to 19,000 by 1990. This area is presently connected to downtown by the Congress Street subway line. Two bus lines also provide some additional access to the downtown area. However, access to and from commuter railroad stations, and other sections of the Central Area, outside the Loop, is very limited.

d. Service to McCormick Place and Soldier Field

In the last twelve months, an estimated 7 million trips were made to McCormick Place. Currently, there is no scheduled public transit service to McCormick Place. Most large hotels do provide shuttle (sometimes free) bus service for their guests during significant events. Therefore, it

must be assumed that most people going to McCormick Place use either private auto or taxi.

Bear games at Soldier Field are singularly large traffic generators. Some bus service is provided by CTA for the games. However, only a small percentage of those going to the games use transit. Again, it must be assumed that a majority of those at the games arrive and depart by private auto.

In conclusion, the future absence of the Distributor implies the continuation of the existing shuttle bus service that operates basically during peak hours only and connects each of the three main railroad commuter terminals with the Loop and the near north area. In addition, taxis do a brisk business both during peak as well as off-peak hours. Such service is slow (bogs down completely during foul weather), non-frequent, has limited capacity, and contributes heavily to air pollution and traffic congestion in the Central Area. Because of such poor service, many commuters and others elect to use their private cars to gain better (and sometimes

cheaper) access to their final destinations. This in turn tends to worsen the air pollution situation and contribute to more congested arterials leading to and within the central area. Many people who elect to walk to their destinations are subjected to severe weather conditions due to the absence of sheltered and continuous system of passageways within the loop area.

Other environmental, social, economic, and visual implications of the do-nothing alternative follow.

a. Environmental Impacts

The "do-nothing" alternative, involves no further disruption of the community, historical and cultural sites, or biota in the region. However, the existing noise and vibration problems associated with the existing elevated system will continue unabated. The lack of additional transit service will preclude extensive limitation of motor vehicle use in the Central Area of Chicago, where such limitation may be desirable in efforts to achieve and maintain Federal Air Quality Standards. The do-nothing alternative will favor an increased reliance

on motor vehicle transportation with its attendant noise, air pollution, accident toll, and energy and petroleum resource consumption problems. It is estimated that the do-nothing alternative will be responsible for 1.2×10^9 vehicle miles of travel in 1990 over and above that which would occur with the proposed subway systems. These additional vehicle miles of travel in 1990 will be responsible for an estimated

- 49 metric tons of carbon monoxide emissions per day
- 7 metric tons of hydrocarbon emissions per day
- 8 metric tons of nitrogen oxide emissions per day
- .7 metric tons of sulfur dioxide emissions per day
- 2 metric tons of particulate emissions per day
- 100 million gallons of gasoline consumption in that year
- 19 more fatalities and 4,500 more personal injuries than would occur if the people involved used transit.

There is also considerable concern over the safety of the deteriorating existing elevated system. The existence of the elevated crossing at grade represents a potential safety problem of considerable magnitude.

b. Economic Impacts

This alternative will severely hamper future commercial and residential redevelopment of the entire

Central Area. Those private development of the projects that have been undertaken within the Loop Area in recent years have anticipated the construction of the subway loop and Distributor system. The lack of improved circulation and minimal employment growth will cause retail sales activity to decline in real dollar terms.

c. Social Impacts

The social problems of the present system remain: security problems associated with obsolete station facilities; the use of land directly below the el structure as a junkyard outside of CBD; blighting influences on residential neighborhoods, deterring private redevelopment; and unsatisfactory station location in some neighborhoods, impeding access to employment, service and cultural centers.

Additionally, the "el" structure directly impedes the normal functioning of a number of close-by community facilities due to noise and vibration generated by passing trains:

a. St. Joseph's parochial school, 1065 N. Orleans St.

b. Cooley Vocational High School, 1225 N. Sedgwick

c. Franklin Elementary School, 225 W. Evergreen

d. Playground on 1400 block of North Park Avenue

e. Playground on 1700 block of Clybourn Avenue near Sheffield

f. Mary Thompson Hospital, southwest corner of Ashland and Lake

g. Hermitage Manor Cooperative, a recently-built moderate-income residential area

h. Union Park and Fieldhouse on 1500 block of W. Lake Street

i. Cardinal's Archdiocesan offices, Wabash and 13th Street

j. Roosevelt and DePaul Universities, in the Loop

The do-nothing alternative will create an exclusive area in the near north side with job and service opportunities available mostly to the highly mobile and affluent segment of the Chicago population to the exclusion of all others.

d. Visual Impacts

The existing Loop aerial transit system provides a physical enclosure for the central business area of Chicago and visually defines the compactness of that area: it is the visible hub of radiating transit lines which provide the transit patron with a strong sense of arrival and departure appropriate to the focal

point of a metropolitan region. The streets which are occupied by the existing Loop structure remain viable despite its presence: this is particularly true of Wabash Avenue, and, in a different sense, of Van Buren Street.

The Loop structure in its present form is a unique and contradictory urban element. The urban design criteria established in the Interim Report recognize the positive benefits which result from visual definition of the downtown transit system and the possibilities of further development of the ground-level public sector related to the transit right-of-way; however, the deficiencies of the existing structure obscure its inherent merits.

Retention of the present system with no change insures that the full urban design possibilities of the transit loop will not be realized and that the existing negative effects of its presence in the downtown area will continue. The present system compliments the pedestrian with partial weather protection and minimal relief from traffic conflicts; it admits a minimum amount of natural light and a maximum amount of noise to the streets below;

provisions for vertical movement, lighting, graphics, maintenance, and handicapped accommodation are substandard.

The do-nothing alternative defines possibilities; however, these have no chance of realization unless definitive upgrading is accomplished, and, therefore, this alternative is not recommended as a course of action.

B. Passenger Conveyors

One basic concept for a people mover is a high-speed, continuously moving pedestrian belt, often mentioned as an alternate for a distribution system. Such a system would be instantaneously available with no waiting; all destinations would be served as an express or non-stop service and its operation would be completely automatic and safe. However, to date, other than for slow-speed (slower than walking) belts, escalators and horizontal "speed walks", none of these concepts has advanced to the operational stage or is this foreseen in the near future.

The "State of the Art" in conveyors has never progressed much beyond the Paris design introduced in 1900. The fundamental drawback of all continuous, high-speed conveyor systems is the safety problem and the related technical problem of safe acceleration and deceleration of a standing passenger. Another drawback is the impossibility of negotiating horizontal curves for a true belt system. Rollers or some other means must be used around corners.

A recent UMTA funded report concluded that considerable development work was still required for safe operation and that no system could provide high-speed capability. Therefore, while development work has been extensive, ranging over the

last 100 years, high-speed conveyors must still be placed in the "to-be-developed" category and not considered practical for application to the Chicago loop area.

C. Grade-Separated and Segregated Transit

Over 100 transportation systems and concepts were investigated as a part of our study effort to explore all conveivable technologies for grade separated and segregated transit service suitable for the Chicago loop project. These ranged from advanced concepts such as the Gravity Vacuum Tube, to newly developed systems such as the Tracked Air Cushioned Vehicle and MagLev to the French Metro system already discussed.

The first step was to screen out any system that was only an engineering concept and had not, at least, progressed to the prototype stage. Otherwise, operation in the 1977-1980 time frame would be impractical. Other systems were screened out as being unsuited for this application due to design or function such as the GVT or TACV, both impractical for close station spacings.

Only 17 new technology systems survived this initial screening as being operational and potentially applicable to Chicago. A detailed description of these was discussed in the Interim Report, none of them was found suited to the Chicago application. While each has certain desirable features, all have overwhelming drawbacks in the areas of capacity and cost. Assuming that capacity considerations were not a problem, the costs of

converting the entire Chicago system to any new technology are enormous and the advantages to be gained from such conversion would have to be overwhelming in order to even consider such a project. For example, a complete system conversion to the combination rubber tired-steel wheel French Metro system would cost approximately one-half billion dollars and a complete conversion to a non-steel system, such as the Westinghouse Transit Expressway would cost over one billion dollars. In the areas of noise, vibration, speed and economy, modern steel wheel on steel rail technology is equal or superior to any of the combination or rubber tired systems now available. Therefore, since there are no advantages to converting to either one of these systems to offset the cost, such a conversion can be dismissed from further consideration.

The one other possibility which should be discussed is the elimination of the loop elevated entirely and its replacement by a PRT system. This system would also perform the functions of the proposed Distributor. Such a system would envision terminating the trunk line rapid transit routes near the edge of the downtown business district and transferring to a PRT system for ultimate destination.

PRT or Personalized Rapid Transit is the newest and most

innovative development in urban transit technology. In concept, it would provide personal mass transit service in an auto-free urban environment through a ubiquitous network of small vehicles (2-6 passengers) instantaneously available. These would speed at an average rate of 25-30 miles per hour directly from a passenger's origin to destination bypassing all intermediate locations. In effect, it would replace not only the subway but also the taxicab and private auto on a mass transit basis.

To achieve these goals, a highly sophisticated technology is needed since at any appreciable volume, headways in the order of fractional seconds and instantaneous switching are required. This creates extremely complex control and safety problems. Also, the problem of empty vehicle management so as to match vehicles to demand is very complicated and difficult to solve. While much development and prototype work is now being actually accomplished and a few PRT prototype systems have been tested, any large-scale actual installation is still far in the future.

One of the most significant parameters applicable to the Chicago Central Area Transit Project was the requirement for operational capability by 1981. The dual mode and PRT

concepts were dismissed from further consideration in view of the current state of technological development of vehicle systems applicable to these concepts. In addition, there were serious questions relative to economic feasibility of having a complex and expensive dual mode vehicle performing manually operated collection-distribution function on local streets.

From the service viewpoint, such a system has the inherent drawback of requiring a transfer for all passengers entering the downtown central business district and two transfers for through type. Patrons do not like to transfer and this would inhibit transit usage. Since the proposed loop subway and distributor system, when added to the existing State Street and Dearborn Street subways, would provide adequate coverage of the central business area within convenient walking distance such a PRT system would not be an advantage. Also, it would greatly inhibit future operational flexibility as the turnback advantages of the loop would not be available and each of the radial lines would have to be isolated and operated independently.

D. Conventional Rapid Transit

For all above reasons, it is concluded that it is in the best interest of the Chicago transit system to retain its existing steel wheel on steel rail system and complete flexibility so that all lines are operated by the same equipment. As traffic patterns change, equipment can be reassigned and service and route patterns changed to meet those demands by use of the loop configuration. New technological innovations in the areas of automatic train control, automatic fare collection system, new track support and vehicle design concepts can be gradually incorporated to existing CTA system.

IX. LOCATIONAL ALTERNATIVES

The District's Engineering, Planning, Architectural, and Special Consultants have expended considerable efforts in investigating and evaluating all possible route, vertical alignment and station locations for this project. Twelve alternative schemes representing variations in both horizontal, as well as vertical alignments were considered by the special consultants. The locational plans of Alternative 1 through 12 are shown in Appendix 3 .

The following goals and objectives were used to evaluate each of the twelve schemeswith respect to their impacts on the physical, social, and economic environment of Chicago's Central Area:

- Viability of the central city
- Adequate distribution of passengers
- Extension of service to growing activity centers
- Removal of existing "L"
- Reduction of vehicular traffic volume
- Maintenance and enhancement of the transit systems service marketability
- Environmental improvement
- Urban design potential enhancement
- Social impact improvement
- Energy conservation
- Economic resource allocation

.. Improved interfacing with other transportation modes.

.. Minimizing disruption during construction
. Improved facilities for the handicapped.

Summaries of the evaluation ratings for each of the twelve alternative schemes considered for such parameters as service, operations, cost, environment, urban/architecture design, social factors and economic factors are graphically shown in Appendix 4 . The degree of shading in each circle in the evaluation charts indicates the contribution of any particular alternative toward the attainment of the indicated goals and objectives outlined earlier. A white circle indicates the least contribution while a black circle indicates maximum contribution. A composite summary chart shows the relative overall standing of each of the alternative chart schemes. Four alternative schemes representing different levels of service and cost levels selected as the most meritorious solutions were those which would satisfy the Chicago Central Area requirements.

Detailed impacts of these four alternatives, namely 4, 6, 11 and 12, are covered in the following sections. These four alternatives were commended to the District for in-depth considerations and discussions leading to the adoption by the District and the Chicago public of the most viable transportation development program for the Chicago Central Area. Following extensive discussions and considerations by the District and its Board of Senior Consultants in consultation with various segments of the District's citizen groups, alternative #6 was selected by the District's Board of Trustees as representing the

most viable alternative for implementation in the Chicago Central Area.

A. Alternative Scheme 4

This alternative as shown in Appendix 3 eliminates the classic loop system in favor of the Clinton-Monroe-Michigan distributor system and a new north/south subway along Franklin connecting the Evanston/Ravenswood with the Dan Ryan system.

1. Environmental Impacts

This alternative would eliminate the visual, noise and vibration impacts of the existing elevated loop system. It appears that this system would provide a level of transit service slightly higher than the do-nothing case. This situation precludes extensive limitation of motor vehicle use in the Central Area of Chicago, where such limitation may be desirable in efforts to achieve and maintain Federal Air Quality Standards. Alternative 4 would favor an increased reliance on motor vehicle transportation with its attendant noise, air pollution, accident toll, and energy and petroleum resource consumption problems. It is estimated that this alternative would be responsible for about 0.6×10^9 vehicle miles of travel in 1990 over and above that which would occur with the proposed subway systems. These additional vehicle miles of travel in 1990 will be responsible for an estimated

25 metric tons of carbon monoxide emissions per day

2.5 metric tons of hydrocarbon emissions per day

4.0 metric tons of nitrogen oxide emissions per day

0.35 metric tons of sulphur dioxide emissions per day

1.0 metric tons of particulate emissions per day

50 million gallons of gasoline consumption in that year

9 more fatalities and 2,500 more personal injuries than would occur if the people involved used transit

Construction of this alternative would require disposal of excavation spoil with its attendant potential impacts on biota and water quality. Underground construction will necessitate attention to ground water, utility maintenance and relocation, foundation support and underpinning problems.

2. Social Impacts

Scheme 4 is the lowest rated alternative of the four alternatives studied in detail regarding its beneficial implications for satisfying the social needs of various segments of the communities within the CUTD. This scheme does provide service to North Clark, North Michigan, the near South Side, Cabrini Green, and Chinatown, but service is not provided to Taylor Street, south of Circle Campus, West Madison or Pilsen. The most critical negative impact that would be caused by Scheme 4 is the reduction of service to the Loop. This reduction would cause severe impact because of the essential functions provided by many human service facilities located in the Loop. Such reduction coupled with the provision of new transit service to the near north area would accentuate the present imbalance in the development of these two areas.

Under this scheme, part of the elevated structure would be torn down, thus eliminating some of the present system's blighting influence. Limited new subway construction would occur in the Loop compared to the present scheme resulting in reduced short-term disruptive impacts.

Service to Chinatown and the near South Side area will be improved somewhat by the construction of the Franklin Street subway. This improvement is negated somewhat by the removal of the Loop, decreasing significantly the areas covered by the transit network.

Scheme 4 would cause relatively few displacements as summarized below:

	Commercial	Industrial	Residential	Other	Total
Central area	14	0	0	0	14
Total area	26	4	55	0	88

3. Economic Impacts

The elimination of the "L" structure and the construction of the Distributor subway would primarily enhance the long term commercial development potential of Michigan Avenue. Hotel development in this area would be greatly enhanced through the direct service link to McCormick Place. The distributor service would also improve visitor access to the Central Loop Area. In addition, North, South subway on Franklin would provide impetus to high density residential construction south and northwest of Loop area.

The elimination of the present loop system would remove the blighting structures located in its close proximity. The reduced circulation service would, however, offset a large portion of this potential gain. In general, this alternative would allow the Central Area to maintain its present regional economic status. In the long term it would not be a catalyst to major new development activity levels beyong those cited

for hotel development.

Development Cycle:

This alternative would in the short term (1975-1980) not induce significant new commercial office development in the Central Area. It would add strong support to continued hotel facilities' trade volumes. The elimination of the "L" structure without the addition of new fixed guideway improvements to the Loop Area would provide an interim stimulus to modernization of a few selected office facilities in the Loop Area.

In the long term (1980-1990), new commercial office development would continue on a committed tenant basis at about the same level as was experienced during the 1960's. The primary long term residential impact would occur in the North Michigan Avenue and the Clinton Street areas.

Cumulative Development Impact:

The cumulative 1990 development impact of alternative 4 are summarized in Table IX. 1. In terms of employment growth this scale of development would also add approxi-

mately 100,000 employees to the existing employment base of the Central Area. The Loop Area under this alternative would be expected to capture 70% of this incremental growth.

Table IX. 1

Cumulative Development Impact
Distributor Only

Commercial Office (millions of sq. ft.)	Hotel (rooms)	Residential (units)	Retail Space (millions of sq. ft.)
14.3	7,000	20,000	.70

Source: Institute of Transportation and Regional Planning

4. Visual Impacts

A. Summary Description

Alternative 4 confines the positive effects of transit construction in the Loop area to Monroe and Franklin Streets, and to Michigan Avenue: opportunities for direct transit-related design development are limited to specific subway rights-of way.

Inherent in Alternative 4 is the possibility of recreating Wabash Avenue, Wells, Lake and Van Buren Streets as joint-development pedestrian malls after demolition of the existing structure, and the possibility of a north-south underground pedestrian circulation route between Clark and Dearborn Streets, connecting existing underground shopping areas beneath the present mid-loop plazas and providing access to the fringes of the loop area along weather-protected and vehicle free routes. However, the latter is not inherent in the construction of the transit facility.

Alternative 4 offers expanded opportunities for future design development of the Clinton Street area: the locations in remaining portions of the distributor right-of-way beyond the Loop area are in the vicinity of Northwestern Station, the Illinois Central right-of-way, and Michigan Avenue, north of the Chicago River. Development in these locations would benefit, but would have little relationship to upgrading the loop itself.

Alternative 4 in general, is an efficient and symmetrical subway system with a well-distributed but minimal impact upon the future urban design development of the Loop: it requires substantial investment in the public sector to fulfill its potential, which is not inherent in its construction. It is recommended only insofar as it represents a minimum cost alternative to the Loop.

B. LONG-TERM VISUAL IMPACTS

Long term visual impacts of the alternative scheme being considered for evaluation primarily result from either the construction of new aerial structures replacing portions of the existing elevated structure or new subway construction that results in the removal of all or portions of the existing elevated structure. These impacts are considered below in two contexts- the impacts of the transit construction on the visual character of adjacent areas, and the intrinsic visual design characteristics of the transit line and stations themselves.

1) New Aerial Construction

In general, the construction possibilities for new aerial structures outlined above occur either as replacement for and in the same alignment of the existing elevated structure or along streets with industrial or mixed industrial and commercial uses in buildings scaled such that a new aerial structure would not be incompatible.

The exceptions to this statement do not apply to those schemes being considered for final evaluations: numbers 4, 6, 11 and 12.

The following is a more detailed evaluation of the visual impacts on the areas specified for new aerial structures in scheme 4. (Ref. Fig. C.5 3-5)

a) I.C. Railroad Right-of-Way South of Monroe Street to McCormick Place

The utilization of the I.C. right-of-way for a new on-grade transit line Schemes 4 and 11 portaling to grade at approximately Taylor Street, both then continuing south to McCormick Place) would have a virtually negligible visual impact to the adjacent area. The utilization of the railroad right-of-way would go unnoticed from Michigan Avenue, Grant Park, or Lake Shore Drive as the existing track level is substantially below the grade level of both the roadways and the park.

Station entrances and pedestrian connections across Lake Shore Drive at Roosevelt Road and McCormick Place, however, could result in important negative visual impacts if not sensitively designed. Construction of these passageways underground as opposed to over Lake Shore Drive would be particularly helpful in reducing potential negative visual impact. This is particularly critical at McCormick

Place, where considerable public investment has been committed to the creation of an important contemporary architectural landmark.

b) Franklin St/Railroad Right-of-way Connection to Dan Ryan

Schemes 4 and 11 propose the extension of the Franklin Street subway south to the Dan Ryan line. The extension would portal to grade in the railroad yards just south at Roosevelt Road, remaining at grade through the yard until west of Clark and adjacent to 16th, where it would transition to elevated and connect to existing Dan Ryan service at approximately 18th Street.

Construction of this line would cause no noticeable negative visual impacts, as the area is already occupied by numerous rail lines and is for the most part below existing grade of adjacent uses. On the contrary, a substantial positive visual impact could occur if a linear park along the east banks of the Chicago River were included as a joint development measure in the air rights above. The cut-and-cover construction of the Franklin Street subway extension north of Roosevelt Road and adjacent to and visually buffered from the on-grade line south of Roosevelt Road.

c) Congress Expressway Distributor Extension

The extension of the distributor proposed in Schemes 4 and 11 would transition from subway to on-grade at approximately Halsted St., through the existing portals

north of the Congress Street line and in the median of the expressway. The line would then proceed west to approximately Wood Street along the north side of the existing service. Stations would be located parallel to existing Congress St. stations, sharing entry and mezzanine facilities where possible and allowing rider transfers.

Due to the already existing visual character of the shared highway/transit corridor and its vertical separation from adjacent uses, visual impact from the new Congress Street extensions would be negligible.

d) Lake Street Portals

A. Portal structure allowing new subway construction to make the transition to an elevated vertical configuration and connect to the existing Lake Street El is proposed for scheme 4:

The portal would occur on Lake Street in the area between the JFK Expressway and approximately Sangamon Street. Such a structure would not have a substantially different visual impact on the area than the existing elevated transit structure with the important exception of the blocking of views and access across Lake Street on Green, Peoria and Sangamon Streets. The Lake Street right-of-way in this area is wide enough to allow 2 lanes of traffic on each side of a center-of road portal structure if parking lanes are eliminated for the

length of the portal. The mixed service-industrial and commercial uses and building scale abutting this area are also no less visually compatible with a portal structure than with the existing aerial.

e) Alternative Alignment from Wolf Point to North Ave. along Kingsbury St.

An alternative alignment for new system construction extending north from the Loop along Kingsbury Street has been proposed for consideration with schemes 4, 11 and 12.

For scheme 12, the new aerial structure would proceed diagonally from Lake and Wells across the Chicago River above a new Franklin Street-Orleans Street bridge and into Kingsbury Street. For schemes 4 and 11 the new subway line would portal to elevated in Kingsbury Street from Kinzie to Ohio Streets.

The alternative would then proceed in an elevated vertical configuration northwest along Kingsbury Street to Sheffield then north on Sheffield to a connection with the existing El between Sheffield and Bissell in the vicinity of Clybourn Street.

The bulk and physical presence of the new bridge and elevated structure crossing the Chicago River as mentioned above for scheme 12 would be the major concern regarding the visual impact of this alternative. Other than the river crossing a

new simply designed elevated structure would be neither out of scale nor incompatible with the industrial and warehouse uses extending the length of Kingsbury though it would have to be coordinated into the design of any new development on Wolf Point. The design of the bridge structure itself would have to be extremely sensitive and well executed, though conceivably it could easily be far more attractive than the existing El river crossing at Wells Street.

Construction problems that would be encountered include maintenance of the truck loading docks at the Montgomery Ward facilities along Kingsbury and an extremely high segment of line necessary to clear the existing Ogden Street overpass, which is approximately 25 to 30 feet above the Kingsbury Street elevation.

2) Subway Replacement of Existing Elevated Structures

The following list outlines the extent of the existing aerial transit structure that would be removed with the construction of alternative 4 and replaced with subway constructions:

a) Removal of existing elevated loop on Wells, Van Buren, Wabash and Lake Streets.

b) Extension of El north from the Loop on or adjacent to Franklin Street to North Avenue and west on North Ave. to existing El in vicinity of Bissell and Sheffield Streets.

c) Extension of El west from Loop on Lake Street to vicinity of Peoria Street.

d) Extension of El south from Loop on or adjacent to Wabash to Roosevelt Road.

In general, the impact of removal of the elevated structures outside of the Loop area will be a substantial improvement to the visual environment. This is particularly true in the primarily residential areas north of the Loop adjacent to Franklin Street (Cabrini-Green), North Ave. and 0gden Avenue and in the mixed residential-commercial-service industry areas adjacent to Lake Street. Removal of the elevated in these areas is called for totally within the CCATP area by scheme 11 and to lesser degree by scheme 4. Scheme 12 calls for the removal outside of the loop only a small portion on Lake Street.

Replacement of the southern extension of the existing El from Wabash to Roosevelt Road with a new subway in schemes 4 and 11 would also substantially improve the visual environment in this area. However, the scale of the buildings and land use patterns in this area are not incompatible with the existing (or new) elevated structure to the degree of the residential areas discussed above.

New transit stations built with these new subway replacements for the elevated would have little visual impact on their immediate

neighborhoods, as the only visible evidence of the stations would be limited to the station entrances. Architectural design of the entrances compatible with the station surroundings could be of net benefit to the visual environment of the station areas.

Likewise, the subway station entrance areas for the new Loop subways replacing the El, as proposed in schemes 4 and 11 could be designed as visually attractive additions to the loop area, though only those underground pedestrian connections necessary for efficient system utilization can be directly proposed as joint development opportunities for schemes 4 and 11, the new Loop area subways could also generate numerous underground pedestrian concourses, lined where possible with commercial activities. If carefully designed and modeled after such well known examples as the concourses of Place Ville Marie and Place Bonaventure in Montreal, they would be welcome additions to the visual environment of pedestrians in the Loop.

Of course, the major beneficial visual impact of schemes 4, 6 and 11 would be the removal of the existing elevated Loop itself. While the elevated structure does provide a unique sense of enclosure to the street views within its boundaries, the removal of the structure and its undeniably blighting visual effects would subctantially improve the visual environments of Wells, Van Buren Wabash and Lake Streets. Substantial positive visual impact would also result from pedestrian improvements to these streets that would be built with the removal of the El. Great as these

improvements would be, however, the net effect in terms of positive visual impact of a new Loop subway replacing the El would not be as great as its replacement with the new elevated structure and galleria as proposed in scheme 12.

5. Passenger Service

This scheme would result in moderate diminution of present passenger distribution levels in ths loop. Distribution of patrons within the loop area is less effective as transfers are required to travel north/south in the new Franklin and existing Dearborn or State Street systems. Michigan Avenue work is somewhat simplified as this would be a two-track rather than a four-track complex. Although the accessibility of downtown, near north side, and McCormick Place destinations to commuter railroad passengers would be greatly improved, they would be forced to make across-the-platform transfers for destinations north of Monroe Street on Michigan Avenue. This alternative would provide new transit service to Clinton Street in particular and west of the river area in general, with attendent revival of commercial and residential developments in the area.

Rapid transit ridership on all lines to the central area under alternative 4 is estimated to increase to 270,000 passengers for the average weekday in 1990, or 38% greater than the 1972 level and about 25% greater than the do nothing alternative in 1990.

This alternative would provide a new street origin/destination service, mainly that between the Dan Ryan and Evanston/Ravenswood lines. However, the well-established Dan Ryan/Lake service would be discontinued. The Lake service would be connected to the Monroe Street Distributor via Clinton Street and proceed southward to McCormick Place. Such service would be later connected with the new Archer Street line via an overhead line along 16th Street. A new potential Blue Island line would connect with Monroe Street line, proceed across downtown, then northward along Michigan Avenue. Other possibilities are available for tying new potential lines with this scheme.

B. ALTERNATE SCHEME 11

A. This alternative located as shown on the route plans in Appendix 3 provides for a fully integrated subway distributor and loop system. In this alternative the loop service is provided on Michigan Avenue, Randolph, Franklin and Van Buren. The distributor service connects the Lake, Congress, Douglas and Milwaukee systems along Clinton providing direct connection with the C & NW and Union Stations and entering the loop on Monroe. At the west boundary of the loop the distributor and loop system tracks are combined into a four track subway system on Michigan Avenue in the segment from Franklin to Van Buren. On Michigan Avenue the distributor serves the commercial area of North Michigan and extends to McCormick Place on the south.

A possible refinement and modification of Scheme 11 retains the positive aspects of the Scheme 11 distributor routed on Clinton and Monroe but replaces the four track Michigan Avenue backbone with two separate systems. The two independent north/south systems would be routed along Wabash for the loop system and in the Illinois Central right-of-way for the distributor system. Such modification would not materially change the different impacts of scheme 11 detailed in the following section.

1. ENVIRONMENTAL IMPACTS

This Alternative would completely eliminate the noise and vibration problems associated with the existing elevated system. The subway system would have little or no visual, noise, or vibration impact. It is believed that this system would carry passengers who would otherwise be responsible for about 1.2×10^9 vehicle miles of travel in 1990. This diversion would result in a reduction in air pollutant emissions, gasoline consumption and traffic deaths and injuries as detailed in the discussion of the do-nothing alternative. This alternative would also have a beneficial impact on traffic noise levels and overall energy consumption.

The added transit service provided by the subway would also provide considerable flexibility for restricting vehicle use in the central area of Chicago, if this should be necessary to help maintain federal air quality standards. Underground construction would require careful attention to ground water, underground utility relocation and service maintenance, foundation support and underpinning problems. There would be considerable amounts of excavation spoil to be disposed of, requiring control efforts to mitigate potential harmful impacts on water quality and biota.

2. SOCIAL IMPACTS

Scheme 11 provides a high level of service to the Loop area but does not provide as many opportunities to satisfy the social needs of the community as does the proposed project. Access to four communities in the CUTD (Cabrini-Green, North Michigan, Near South Side, and Chinatown) would be improved under this scheme. However, it does not provide service to the Taylor St., South of Circle Campus, North Clark, West Madison and Pilsen Areas beyond that currently provided. Scheme 11 does serve the two most critical areas in the CUTD, Cabrini-Green and North Michigan equally as well as the proposed system.

Both scheme 11 and the proposed scheme offer better access and improved design features that would provide better coverage of the Loop than would the other alternatives studied.

This scheme necessitates the greatest number of displacements of any of the 4 schemes studied, as summarized below:

	Commercial	Industrial	Residential	Other	Total
entral Area	383	0	0	0	383
otal Area	418	15	93	3	529

3. ECONOMIC IMPACTS

Development of this alternative would be approximately the same as that of the proposed scheme. This is primarily attributable to nearly equal service level and urban environment impacts of both alternatives. Resummarizing this alternative will provide impetus for the highest level of development which includes 25 million sq. ft. of additional office space construction, 2,500 additional multi-family housing units, 10,000 units of hotel rooms and one million additional sq. ft. of retail sales space by 1990.

4. Visual Impacts

A. Summary Description

Alternative 11 compliments the radial form of Chicago and provides the total system with a symmetrical routing of lines focusing on a compact subway Loop.

The primary goal of transit-related surface development during and following construction of Alternative 11 subway complex is a rapid and visible increase in profit to the general public at ground level, with minimum disruption of existing commercial facilities. The traditional above-ground loop right-of-way is closed to private automobiles--either permanently, or at established hours during each day--and is renewed by joint development as a circumferential pedestrian facility linking retail facilities and cultural activities. Entrances and exits from subway stations beneath Van Buren and Wells Streets relate directly to the pedestrian environment above, and selected entrances of the Michigan Avenue and Randolph Street transit facilities are oriented toward mall facilities operating in Wabash Avenue and Lake Street, respectively. Crossing streets are open to traffic at all times; minibuses and emergency vehicles are allowed within the mall itself during pedestrian hours.

Specific interfaces between the loop subway system and ground level pedestrian system are integrated into arcaded structures of the circumferential mall, or, if a street is permanently closed to traffic, into the center of the mall itself. The pedestrian mall, although convertible to automotive traffic becomes an arrival and departure area surrounding the three open plazas which presently form the north/south axis of the Loop area, and is connected with cultural facilities located along its perimeter.

The construction of the distributor subway through the central portion of the Loop area generates a further development of underground pedestrian circulation presently in operation beneath the mid-loop plazas: the phased completion of this north/south enclosed pedestrian way is recommended in addition to the joint development of ground level mall areas.

The Clinton Street right-of-way is utilized for transfer facilities between rapid transit, commuter railroads and possible future bus connections, and is developed with efficient underground pedestrian linkages between all three modes.

Michigan Avenue north of the Chicago River is the location of the northern leg of the distributor in Alternative Eleven: construction of the subway with this right-of-way enhances the development of entrance-oriented pedestrian facilities east and west of the avenue proper. The continuation of arcaded structures on side streets serves as interface between rapid transit and the existing sidewalk system.

The southward extension of the distributor from the Loop area towards McCormick Place is planned to provide aboveground arrival and departure views of the central city, park, lake and proposed residential developments. The latter developments are concentrated in distributor subway station areas, which are planned to connect housing and park space along the eastern border of the I.C.G. south air rights to the lakefront park.

Alternative eleven offers an improvement of urban design possibilities beyond those inherent in the proposed system, and is recommended in that it avoids the disruption of subway construction on Wabash Avenue, compliments the western commuter stations with direct transfer facilities, and opens the possibility of a North Michigan Avenue-McCormick Place high density transit corridor.

B. LONG-TERM VISUAL IMPACTS

Long term visual impacts of the alternative schemes being considered for evaluation primarily result from either the construction of new aerial structures replacing portions of the existing elevated structure or new subway construction that results in the removal of all or portions of the existing elevated structure. These impacts are considered below the two contexts-the impacts of the transit construction on the visual character of adjacent areas, and the intrinsic visual design characteristics of the transit line and stations themselves.

1) New Aerial Construction

In general, the construction possibilities for new aerial structures outlined above occur either as replacement for and in the same alignment of the existing elevated structure or along streets with industrial or mixed industrial and commercial uses in buildings scaled such that a new aerial structure would not be incompatible.

The exceptions to this statement do not apply to those schemes being considered for final evaluation numbers 4, 6, 11 and 12.

The following is a more detailed evaluation of the visual impacts on the areas specified for new aerial structures in scheme 11. (Ref. Figs. C.5. 3-5)

a) I.C. Railroad Right-of-Way south of Monroe Street to McCormick Place:
(Refer to A.4.b.1)a) above.

b) East-West I.C. Right-of-Way from 14th Blvd. to the Dan Ryan Line

Scheme 11 proposed the connection of the north-south distributor line to the Dan Ryan line from the north-south I.C. right-of-way in the vicinity of 14th Blvd. (across Lake Shore Drive from the Field Museum) along the east-west I.C. right-of-way north of and approximately parallel to 16th Street, swinging southward just west of Clark and connecting to the Dan Ryan service at

approximately 18th Street. As the railroad right-of-way is currently being used, the vertical configuration of the connection would necessarily have to be elevated. However, a simple, cleanly designed aerial line similar to the new connection above 18th Street could be compatible with the existing building scale and mixed industrial land uses of the adjacent properties, and would likely even be an improvement over a number of the existing buildings.

c) Franklin St. /Railroad Right-of-Way connection to Dan Ryan:

Refer to A.4.b.1)b) above.

d) Congress Expressway Distributor Extension

Refer to A.4.b.1)c) above

e) Lake Street Portals

Portal structure allowing new subway construction to make the transition to an elevated vertical configuration and connect to the existing Lake Street El is proposed for scheme 11.

The portal would occur on Lake Street west of Damen for scheme 11, in predominantly residential areas interspersed with marginal commercial uses. The problem of blocked views and access across Lake for the length of the portal would exist in these areas, but so does the opportunity to maintain with the elimination of parking lanes, 2 lanes of traffic in both directions, in either side of the structure, (due to the wide available right-of-way). A portal structure is, of course,

not as compatible with the scale of the adjacent residential buildings as with the industrial buildings further east, though again, not substantially different than the existing El. However, the removal of the El to the east of the portal location for scheme 11 would be a substantial net improvement to the visual character of the area, particularly for the new housing developments south of Lake and west of Ashland.

e) Alternative Alignment from Wolf Point to North Ave. along Kingsbury St.

Refer to A.4.b.1)e) above.

2. Subway Replacement of Existing Elevated Structures

The following list outlines the extent of the existing aerial transit structure that would be removed with the construction of alternative 11 and replaced with subway constructions:

a) Removal of existing elevated loop on Wells, Van Buren, Wabash and Lake Streets.

b) Extension of El north from the Loop on or adjacent to Franklin Street to the vicinity of Chestnut Street.

c) Extension of El west from Loop on Lake Street to vicinity of Halsted and Green Streets.

d) Extension of El south from Loop on or adjacent to Wabash to Roosevelt Road.

For discussion refer to A.4.b.2) above

5. Passenger Service

This alternative would provide a high level of transit service to Chicago's Central Area in a manner equal to the proposed alternative. However, the following trade-offs should be considered:

a. Integrating Distributor service with the rest of CTA system would eliminate the advantage of operating this line as an independent service as described in the proposed alternative. On the other hand, such integration would result in a better use of CTA equipment and manpower. It should be noted, however, that full fare on the Distributor portion of the system would continue until an automatic and graduated fare collection system is implemented system wide.

b. C & NW and Union Square Stations would be served more directly by this alternative than by the proposed scheme. (i. e. less walking distance to transit station). However, all C & NW passengers with destinations north of Monroe St. on Michigan Ave. would make across-the-platform transfers.

c. Service on the Milwaukee line would be split into A and B routes, each, unlike present situation, serving differ-

ent destinations in the Central Area. Although some passengers would be delivered closer to their destinations than at present, many passengers would find it necessary to transfer at an AB station to reach their desired destination.

d. Only Evanston and Ravenswood service would initially use the new underground loop. Although this would allow for the introduction of new service to the loop (i. e. the Archer Avenue line), the loop system would be under-utilized until new service is added.

e. The present origin/destination service between Jefferson Park and the Congress line would be discontinued. New direct origin/destination service would be introduced between Jefferson Park (and eventually O'Hare Airport) and McCormick Place.

f. Shifting the transit line one block east from Wabash to Michigan Avenue would result in slight service degradation to present users of the eastern portion of the loop system and may reduce off-peak (Saturday) traffic. However, this shift may have long-term favorable impact on the development of Michigan

Avenue. Placing the alignment of the proposed Distributor section located between Van Buren and the Chicago River in Michigan Avenue would result in more transit patronage in the short-term, but might hinder the accessibility to planned developments over I. C. air rights close to Stetson Avenue in the long-term.

Patronage estimates to the Central Area on all CTA rapid transit lines including Alternative 11 are estimated to be high reaching 320,000 for the average weekday in 1990, a 70% increase over the 1972 levels and close to a 50% increase over the Do Nothing Alternative in 1990.

C. Alternative Scheme 12

As shown in the route plans in Appendix 3 this alternative retains the elevated concept for the loop system. The loop remains defined by Wells, Lake, Wabash and Van Buren with northbound access along Wells to the Evanston/Ravenswood system and southbound along Wabash to the Dan Ryan system. This loop system is complimented by the Clinton-Monroe distributor of Scheme 11 modified to locate its eastern north/south service routed through the Illinois-Central right-of-way.

1. Environmental Impacts

Noise levels from this aerial alternative should be substantially less than those from the existing elevated system, but the aerial system will undoubtedly be noisier than the subway alternatives. The flexibility which this alternative provides for possible limitations on motor vehicle use for air pollution control depends on the transit capacity provided, but it should be good. It is expected that patronage on an aerial system would be lower than on an equally extensive subway system. It has been estimated that this alternative would lead to 0.6×10^6 more vehicle miles of travel in 1990 than would

occur with the more heavily patronized subway. Consequently, in 1990, this alternative would result in about the same quantitative environmental impacts of alternative #4. Therefore, this alternative provides improvements from the traffic, noise and safety, air quality, petroleum resource and energy consumption standpoints compared to the do-nothing alternative, although not as much improvement as that produced by the proposed scheme which draws more patronage. The problems associated with underground construction will not apply with this alternative. There will be no need to dispose of excavation spoil with this alternative. However, in the light of the need for subway excavation spoil to carry out the Chicago Lakefront Plan, it is not clear whether this is an advantage or a drawback.

2. Social Impacts

The social impact of Scheme 12 is not as highly positive as the proposed scheme. Of the nine identified neighborhoods surrounding the Central Area, only the North Michigan Area will experience improved service resulting from this scheme. Those areas experiencing problems resulting from the existence of elevated structure within their boundaries will continue to do so.

The replacement of the existing Loop elevated with a new aerial structure will offer disadvantages as well as advantages. A disadvantage is that transfers between the aerial and subway lines will continue to be difficult. It is also uncertain as to what effect the construction of a new aerial will have on development potential ridership, and people's perception of safety.

The advantages of the aerial are the protection it affords streets from weather and the possibility of making a "galleria" with the structure.

A "galleria" located in the heart of the retail and entertainment districts, in the high-quality landscaping, paving, and amenities, protected by a glazed enclosure, could dramatically increase the attractiveness of the Loop, transforming it into one of the most pleasant urban centers in the world and the focus for the region's social interaction.

Scheme 12 causes the fewest displacements of any of the four schemes studied as summarized below:

	Commercial	Industrial	Residential	Other	Total
Central area	13	0	0	0	13
Total area	15	0	0	0	15

3. Economic Impact

The replacement of the present loop system with a new elevated structure would enhance the economic status of the Central Area. Inherent to this economic opinion is our understanding of the quality of the urban design features of this alternative which would include retail galleries completely integrated in the urban setting of the Loop Area. The development stimulus of this alternative would, however, in the short term equal that of the subway alternatives.

The distributor element of this alternative would produce a similar scale of new hotel and residential development within and adjacent to the Central Area. Pedestrian retail development would be greatly enhanced within the loop area.

Development Cycle

In the short term (1975-1980), this alternative would provide continued stimulus to overall Central Area development. In comparison to the subway loop alternative, the development impact would be less intense prior to 1980.

In the long term (1980-1990), the pace of commercial office development activity would exceed that experienced during the 1960's. The core Loop Area would receive the

highest portion of this incremental office development. During this time period, incremental residential development would be strongly supported to the west and south of the Central Area as well as in the North Michigan Area. Pedestrian retail trade volumes would be enhanced along the entire alignment of this proposed system.

Cumulative Development Impact

The cumulative 1990 development impact of the aerial loop and distributor alternatives are summarized in Table IX.2. In terms of employment, this scale of development would add 145,000 employees to the existing employment base of the Central Area. The Loop Area with the implementation of this alternative would capture approximately 100,000 incremental employees.

Table IX. 2
Cumulative 1990 Development Impact
of the
Aerial Structure Alternative

Commercial Office (millions sq. ft.)	Hotel (rooms)	Residential (units)	Retail Space (millions sq. ft.)
20.6	8,000	20,000	.80

Source: Institute of Transportation and Regional Planning

4. Visual Impacts

A. Summary Description (Ref. Figs. C.4.1-4)

Alternative 12 represents maximum fulfillment of the urban design criteria.

The Chicago Loop is brought to ultimate development as a continuous retail mall encircling the core area. The Loop continues to function as the traditional arrival and departure symbol within the central business area. Transit approaches to the regional commercial and cultural hub have maximum visual impact and orientation value as patrons enter and leave the city core.

The existing elevated structure is replaced by a covered shopping galleria: the three mid-Loop Plazas connect north and south with this covered pedestrian space. Trains arrive above the level of the transparent galleria roof: commercial areas and mall activities at ground level are in full view of transit patrons. The transit-galleria right-of-way is identical to that previously in use, so that patrons maintain their traditional trip patterns.

The galleria floor is open for exclusive pedestrian movement from mid-day to midnight, and forms a continuous circumferential promenade: a weather-protected system for reception, distribution, and exit of both transit patrons and the general

public around the central commercial area. This is complimentary to the three symmetrically located Loop Plazas.

The galleria is convertible, in that it is open to private and service vehicles at specified times of day, and could be open as necessary to the movement of buses. The addition of minibuses (perhaps electric) to the galleria route would be a valid people mover concept within the relatively small physical area of the Loop. Emergency vehicle access and cross-street traffic are guaranteed. Entrances and exits to transit platforms are either within the right-of-way or integrated into the facades of flanking buildings.

An additional value of Alternative twelve is in its two-level grack concept, which provides unique and dramatic sequential views of twenty-four block segments girdling the core.

Disruption in the commercial and public sector is minimized by construction of an above-ground transit system: commerce and public use of the Loop receive positive benefits which mere removal the present "L" would not guarantee.

The ultimate result is the transformation of an outmoded transit resource into a unique asset, following an established urban tradition exemplified by the Tokyo Ginza,
the Galleria Milano, Ghiradelli Square in San Francisco, and
the pedestrian zones of Munich, Bonn and Hamburg.

The construction of the east-west distributor subway under the center of the Loop augments the underground pedestrian circulation presently in operation beneath the mid-loop Plazas: the phased completion of a north-south pedestrian way is recommended in addition to the joint development of the circumferential galleria. Arcaded sidewalks at ground level would further improve the quality of pedestrian distribution.

The Clinton Street alignment is effective in providing easy transfer between rapid transit and the commuter railroads.

North of the Chicago River the northern leg of the distributor is in Michigan Avenue. Construction of the subway within this broad right-of-way makes for easy development of entrances east and west of the avenue proper. The continuation of arcaded structures on side streets serves as interface between rapid transit and the existing sidewalk system.

The southward extension of the distributor from the Loop area beyond McCormick Place is planned to provide aboveground arrival and departure views of the central city, parkland, lake and proposed residential developments. The latter are concentrated in distributor station mezzanine areas, which are planned to connect housing and park space along the eastern border of the I.C.G. south air rights to the lakefront park.

The line connecting McCormick Place and North Michigan Avenue is the initial service in one of the high density corridors of the world. When air rights in the Loop are complete and development reaches to the Indiana line, a thirty mile strip of concentrated development along the lake shore will be connected by transit. East-west feeder buses will service this line and eliminate the necessity of north-south bus movements on the Lake. This line will also make the entire lake front immediately accessible by rapid transit from any part of the city. The recreational opportunities thus opened up are immense and should be of inestimable importance in reducing weekend trips out of the city.

b. LONG TERM VISUAL IMPACTS

Long term visual impacts of the alternative schemes being considered for evaluation primarily result from either the construction of new aerial structures replacing portions of the existing elevated structure or new subway construction that results in the removal of all or portions of the existing elevated structure. These impacts are considered below in two contexts - the impacts of the transit construction on the visual character of adjacent areas, and the intrinsic visual design characteristics of the transit line and stations themselves.

1) New Aerial Construction

In general, the construction possibilities for new aerial structures outlined above occur either as replacement for and in the same alignment of the existing elevated structure

or along streets with industrial or mixed industrial and commercial uses in buildings scaled such that a new aerial structure would not be incompatible.

The exceptions to this statement do not apply to those schemes being considered for final evaluations numbers 4, 6, 11 and 12. The following is a more detailed evaluation of the visual impacts on the areas specified for new aerial structures in scheme 12. (Ref. Figs. C.5. 3-5)

a) I.C. Railroad Right-of-way South of Monroe Street to McCormick Place

The utilization of the I.C. right-of-way for a new on-grade transit line (schemes 12 portaling from subway to grade at approximately Jackson Street, then continuing south to McCormick Place) would have a virtually negligible visual impact to the adjacent area. For discussion, refer to A.4.b.1)a) above.

b) Lake Street Portals

A portal structure allowing new subway construction to make the transition to an elevated vertical configuration and connect to the existing Lake Street El is proposed for scheme 12.

The portal would occur on Lake Street in the area between the J.F.K. Expressway and approximately Sangamon Street. Such a structure would not have a substantially different visual impact on the area than the existing elevated transit structure with the important exception of the blocking of

views and access across Lake Street on Green, Peoria and Sangamon Streets. The Lake Street right-of-way in this area is wide enough to allow 2 lanes of traffic on each side of a center-of-road portal structure if parking lanes are eliminated for the length of the portal. The mixed service-industrial and commercial uses and building scale abutting this area are also no less visually compatible with a portal structure then with the existing aerial.

c) Construction of the New Loop Elevated

Scheme 12 proposes the removal of the existing loop elevated structure and the construction of a new, 2 level structure in the same alignment, along Wells, Van Buren, Wabash and Lake Streets. (Refer to complete description, Sec. IX). The new construction would include a glass roof spanning between the track structures and providing shelter from the elements for the streets below for the entire extent of the Loop. It would also allow a substantial amount of light through to the street eliminating one of the main problems with the existing El.

The new Loop elevated is conceived of as an entire urban design package, including not only the transit structure, galleria and stations, but substantial improvements to the pedestrian/ground level, including trees, planting, and new paving to allow closing the loop streets to traffic as and when desired to create pedestrian shopping malls.

The planned structure is not without potential negative visual impacts, however, the main problem that would be encountered results from the fact that the high side of the new structure is approximately twice as high as the existing structure. The resulting impact is that floors at buildings that previously had unobstructed views from elevations approximately 35 to 65 feet above street level would now be facing some elements of the new elevated structure. This potentially negative impact has been abated somewhat in the structure and station design, however, by utilization of narrow-profile way-structure members placing platforms (i.e. people) next to buildings rather than rail-support structures (i.e. trains) and again by spanning between the two track levels with a clear glass roof (cleaning and maintenance of the glass roof would be handled from the lower track level by service vehicles).

The problems of blocked views considered, the net positive visual impact of the new elevated system as proposed for the loop could be significantly greater than the positive visual impacts that would be gained by removing the existing elevated and replacing it with a new subway. The Loop would be provided with an immediately available, substantial and comprehensive improvement to its visual character and identity.

d) Alternative Alignment from Wolf Point to North Ave. along Kingsbury St.

Refer to A.4.b.1)e) above.

2. Subway Replacement of Existing Elevated Structures

The following list outlines the extent of the existing aerial transit structure that would be removed with the construction of alternative 12, and replaced with subway constructions.

a) Extension of El west from Loop on Lake Street to vicinity of Peoria Street.

b) All other portions of existing elevated structure removed are replaced by new elevated structure (refer to discussion of impacts of new elevated structures above).

For discussion, refer to A.4.b.2) above.

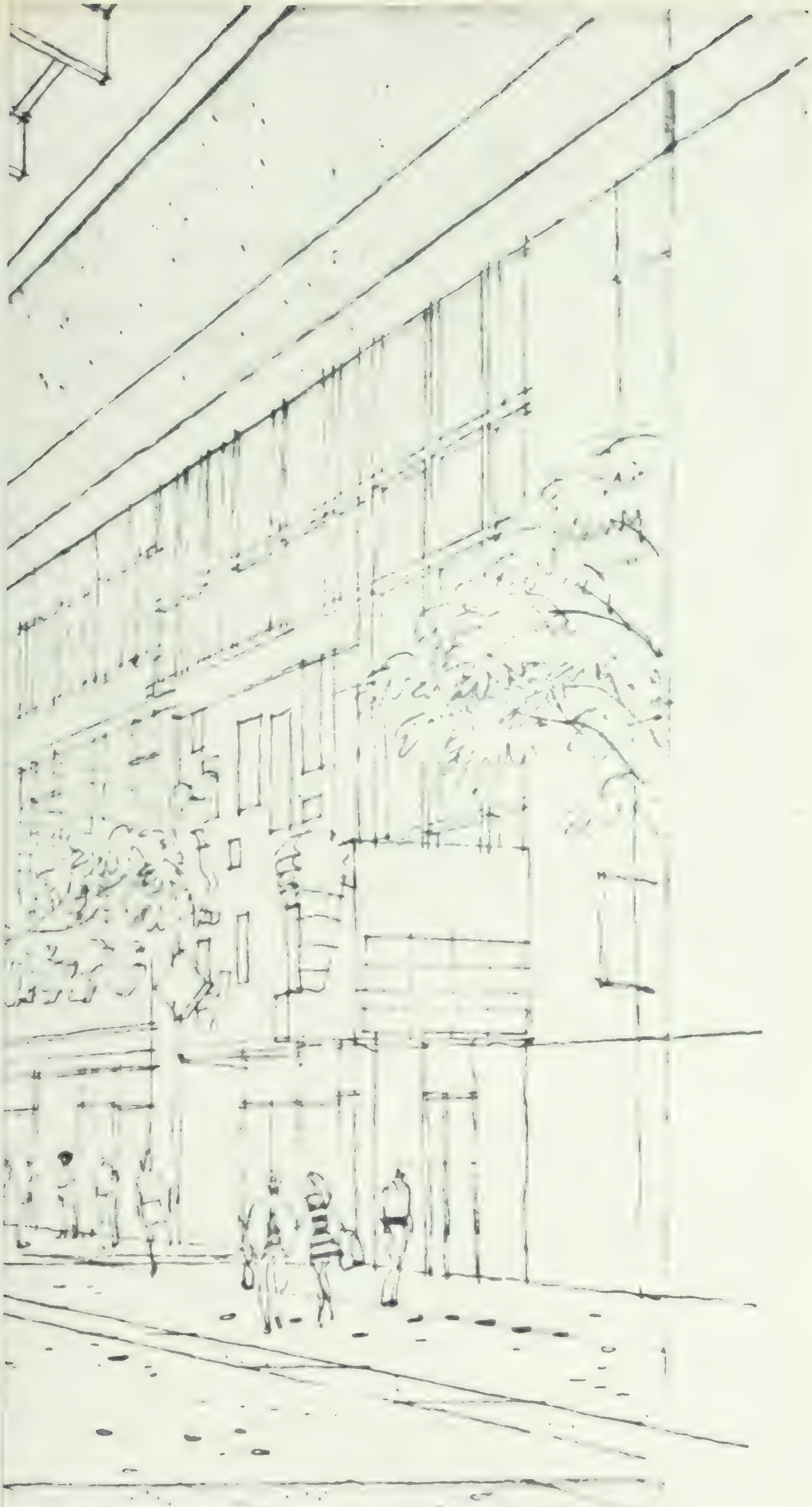


FIG. IX.C.4. F

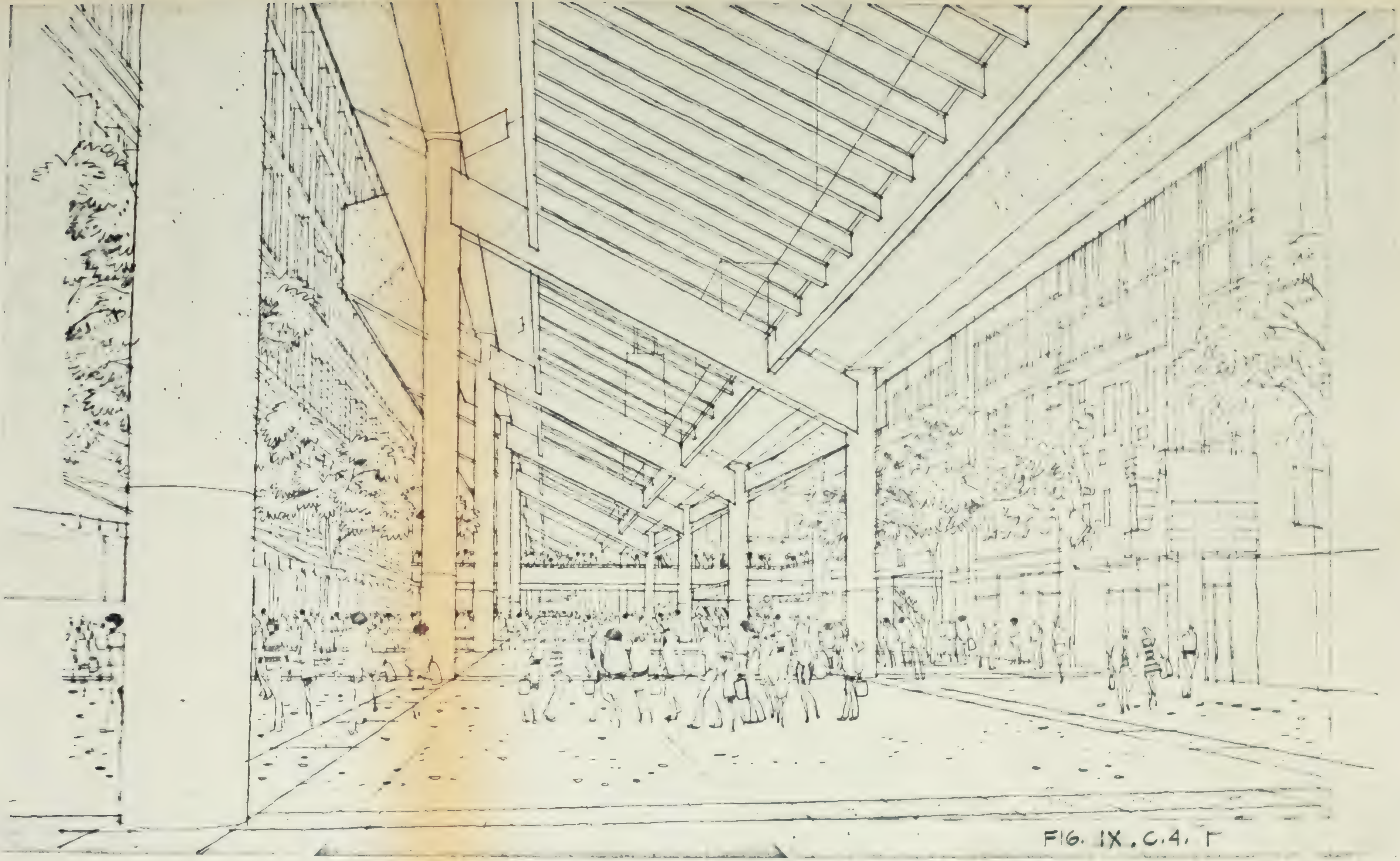
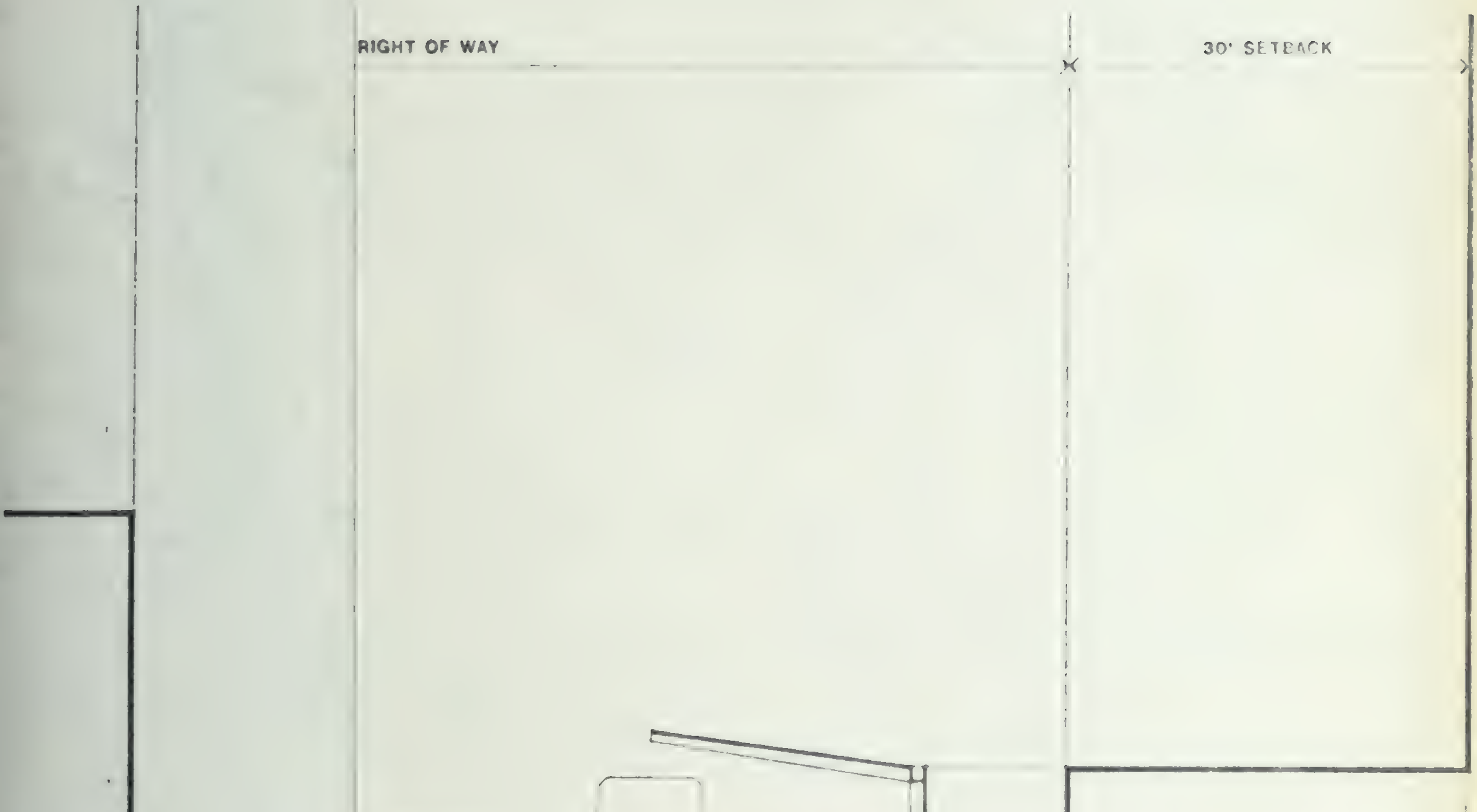


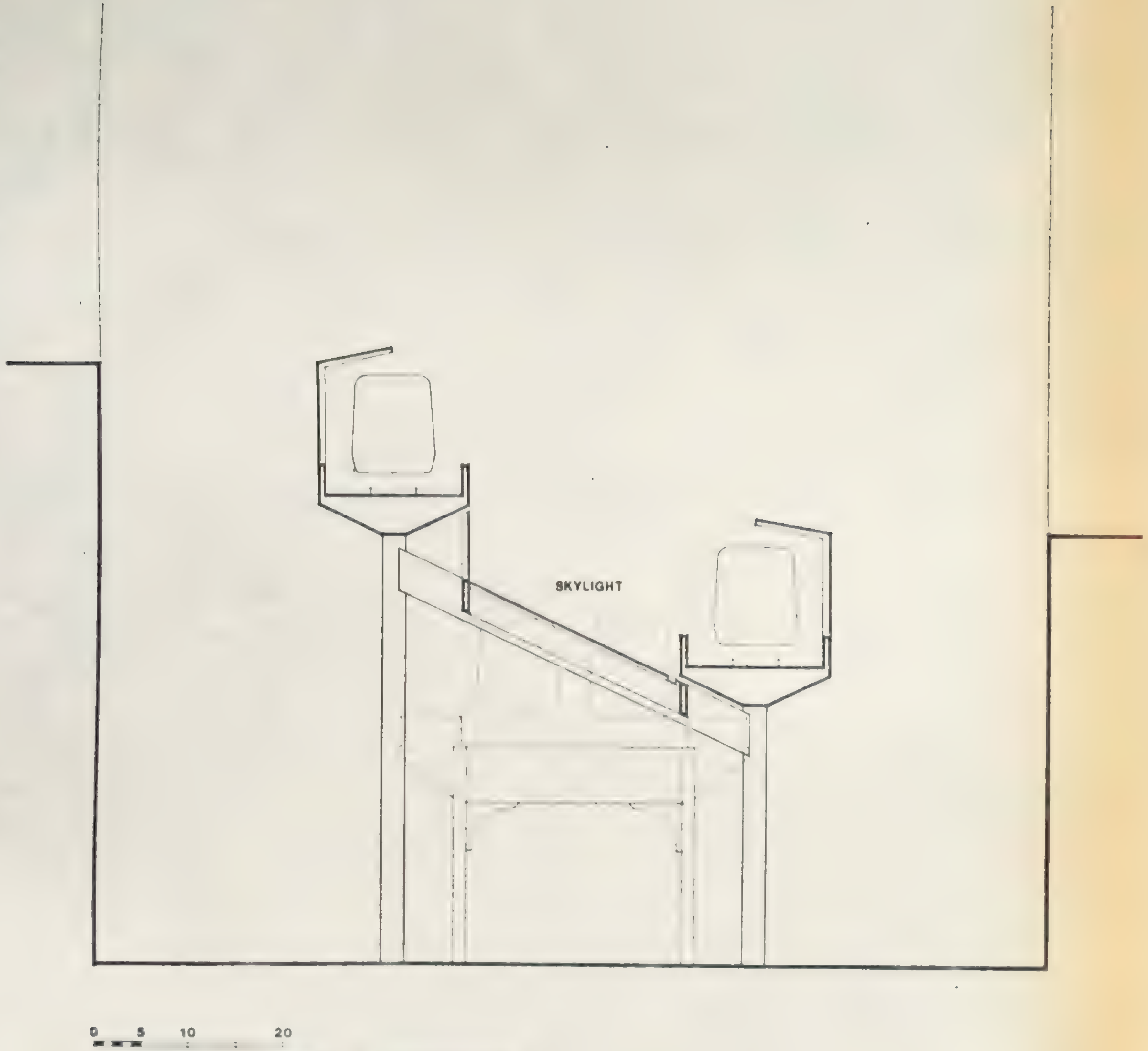
FIG. IX.C.4.F



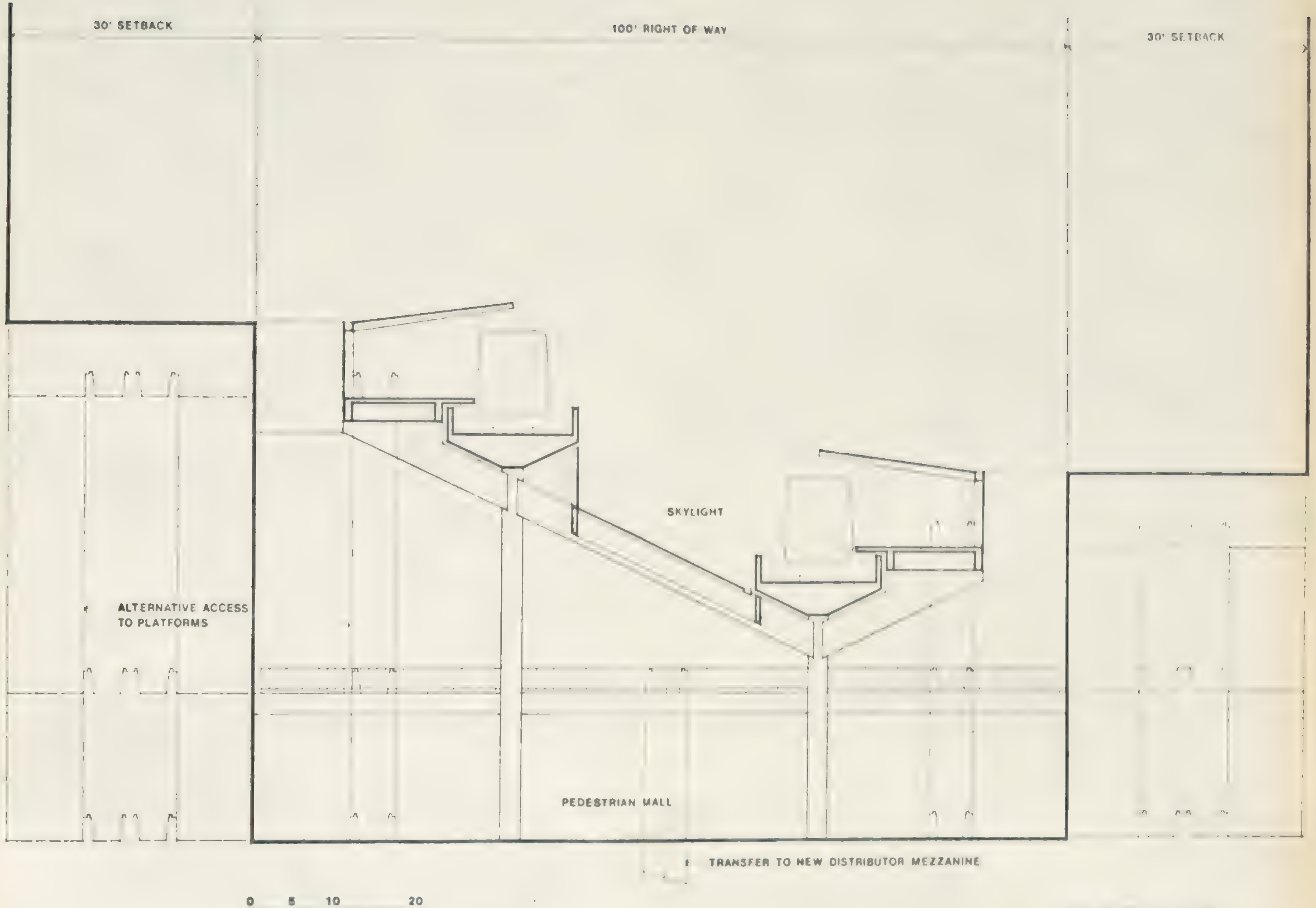
SECTION BET

WABASH

FIG. IX.C.4.2



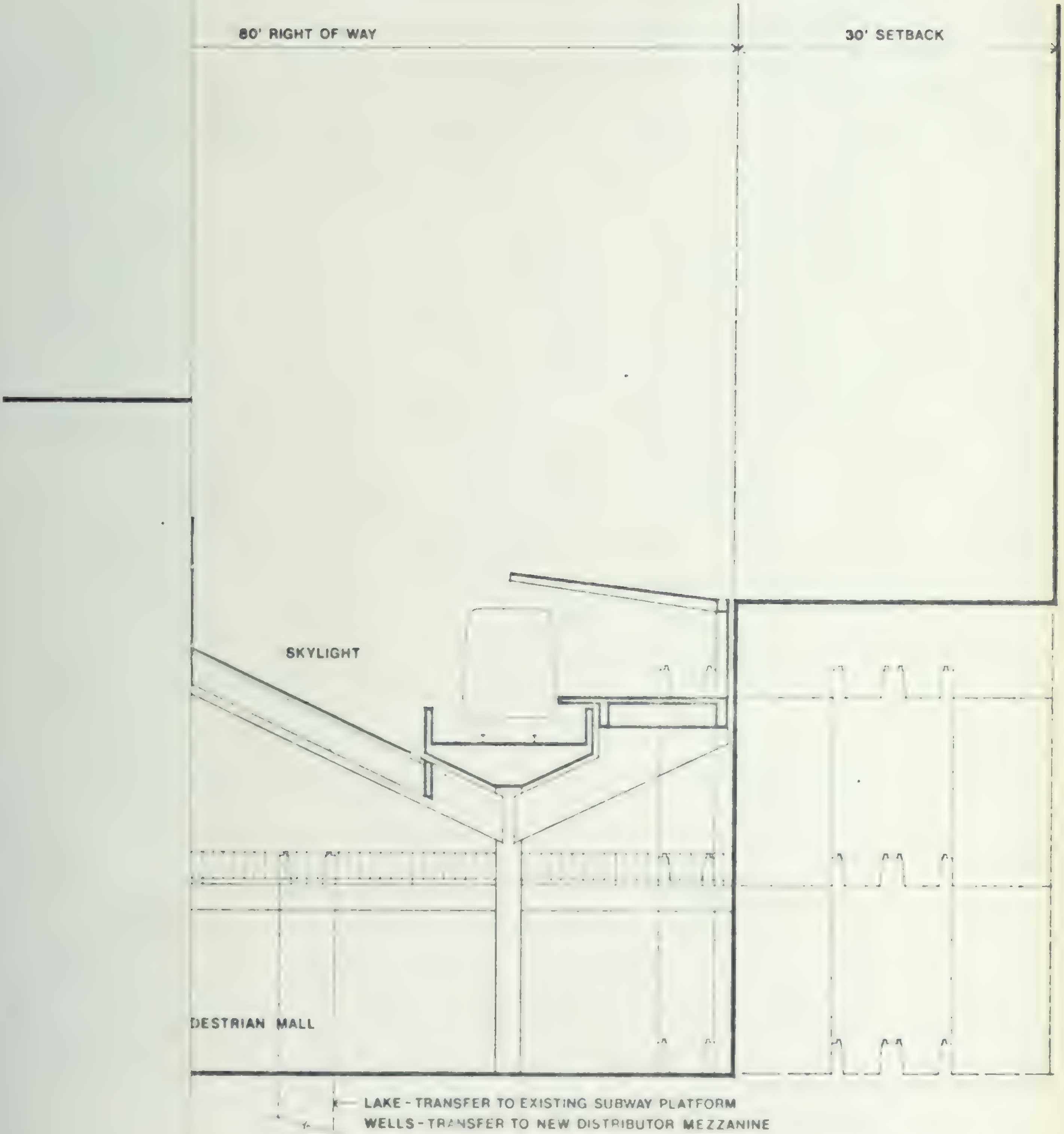
SECTION BETWEEN PLATFORMS



SECTION AT PLATFORMS

WABASH

FIG. IX. C. 4. 2

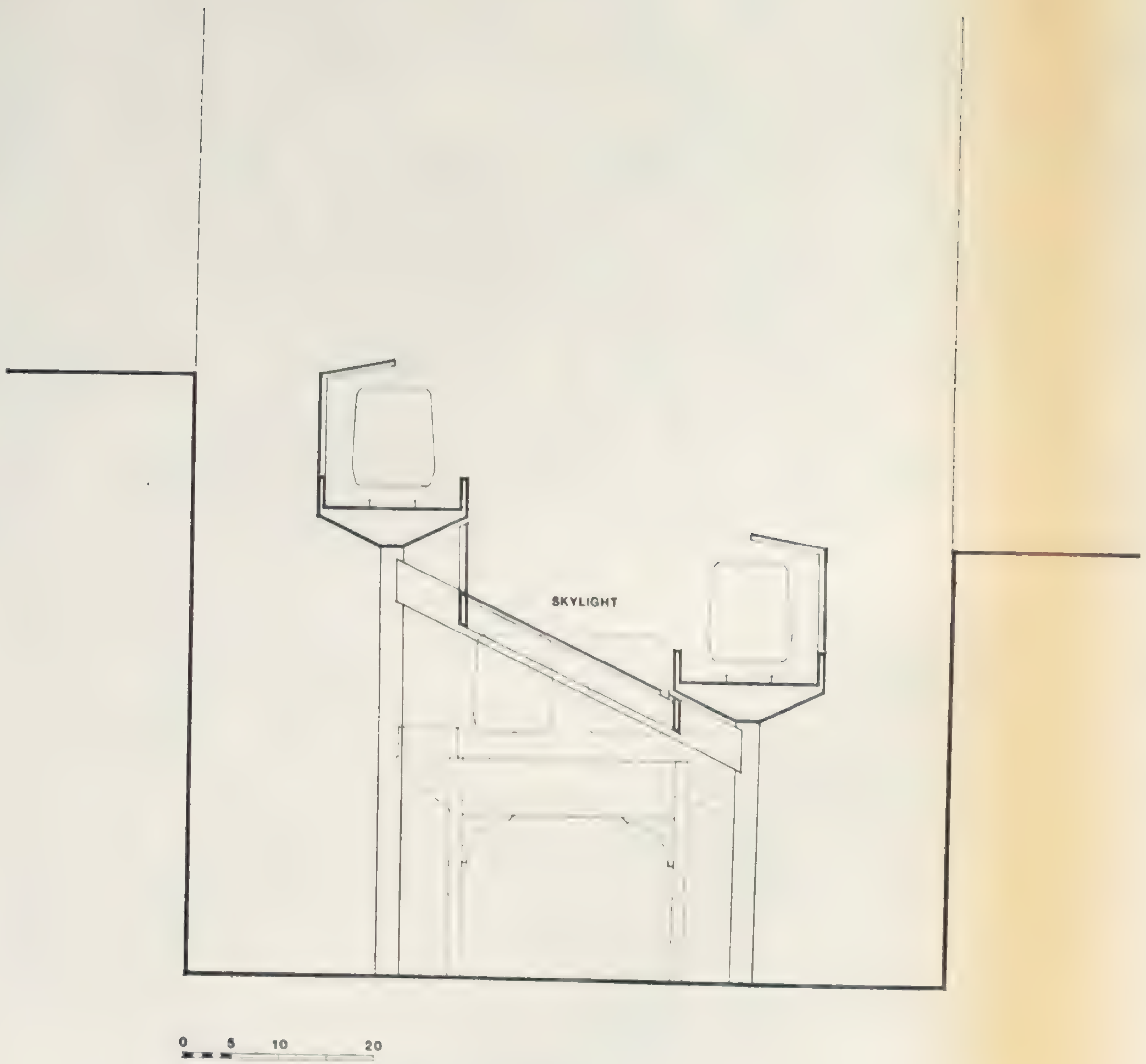

80' RIGHT OF WAY
30' SETBACK
SKYLIGHT
DESTRIAN MALL
LAKE - TRANSFER TO EXISTING SUBWAY PLATFORM
WELLS - TRANSFER TO NEW DISTRIBUTOR MEZZANINE

2

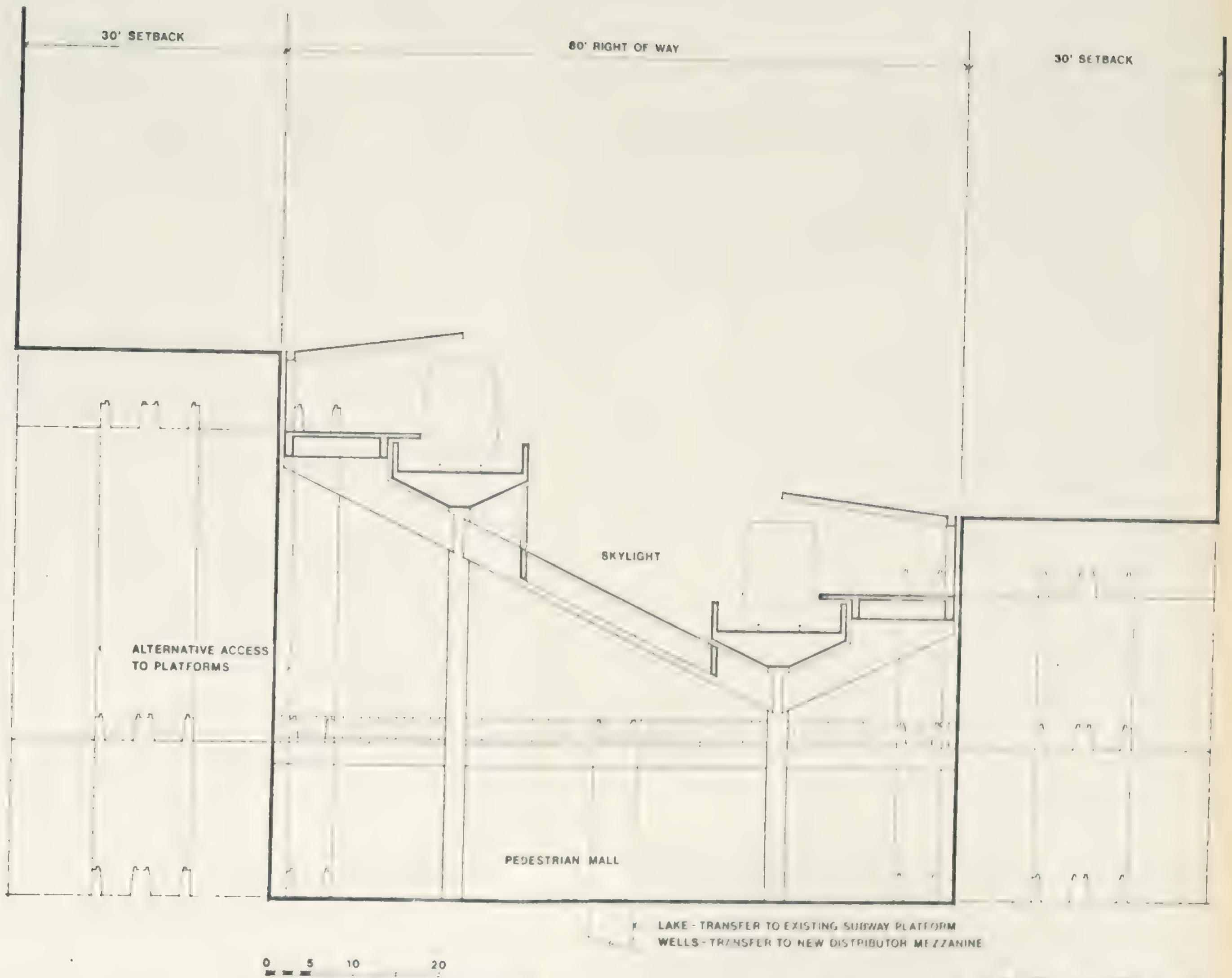
S

LAKE · WELLS

FIG. IX. C. 4. 3



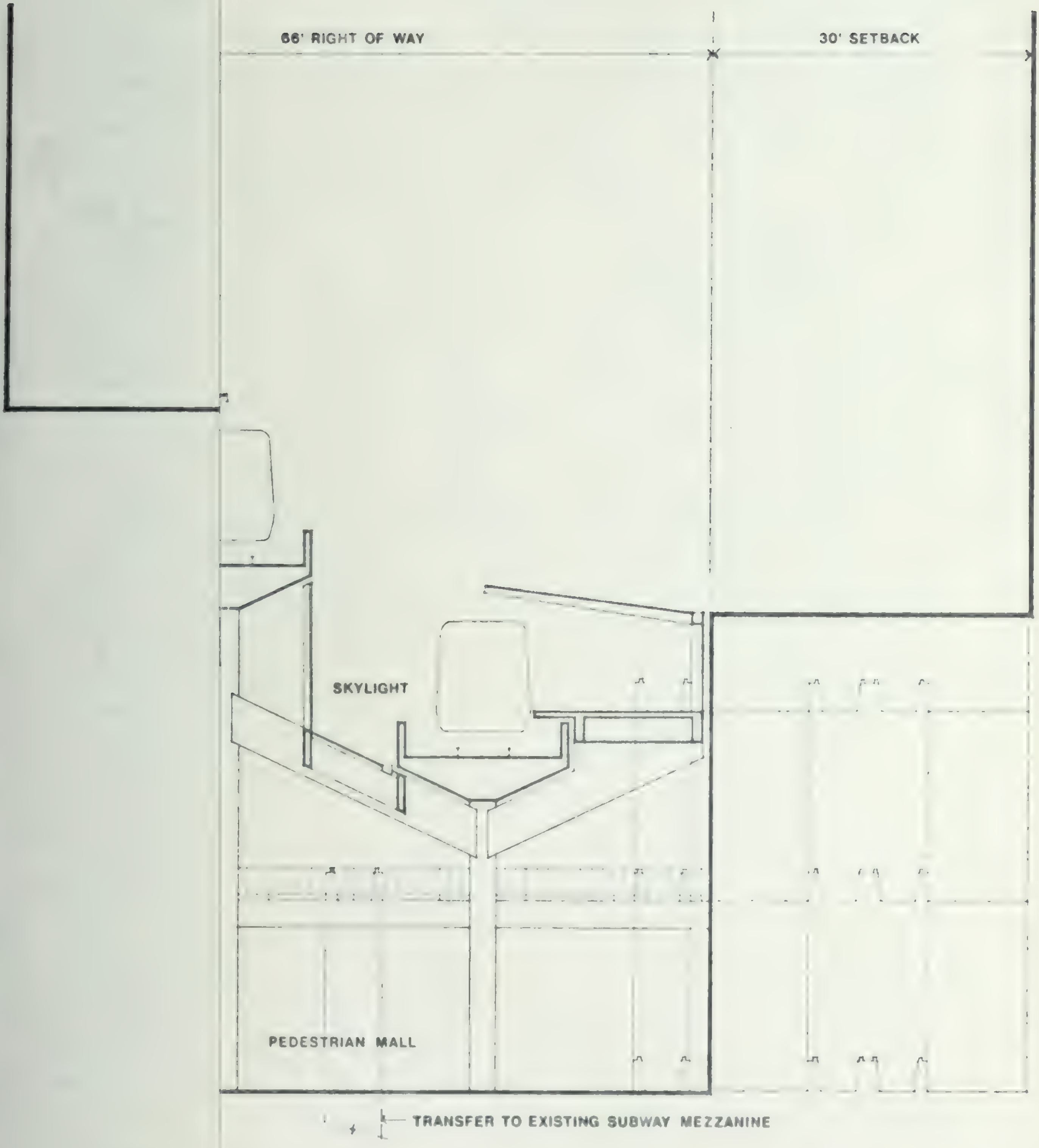
SECTION BETWEEN PLATFORMS



SECTION AT PLATFORMS

LAKE · WELLS

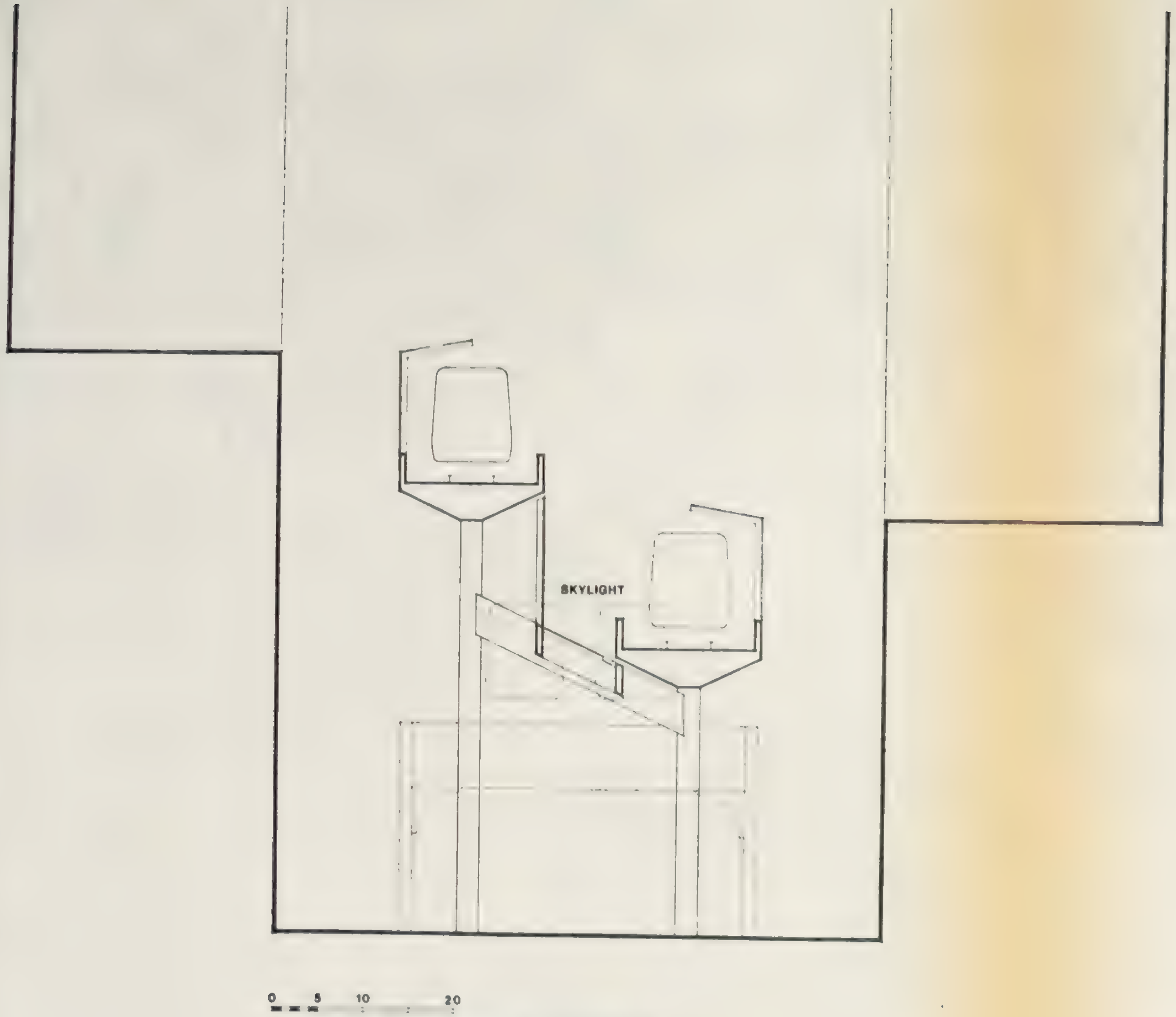
FIG. IX. C. 4. 3



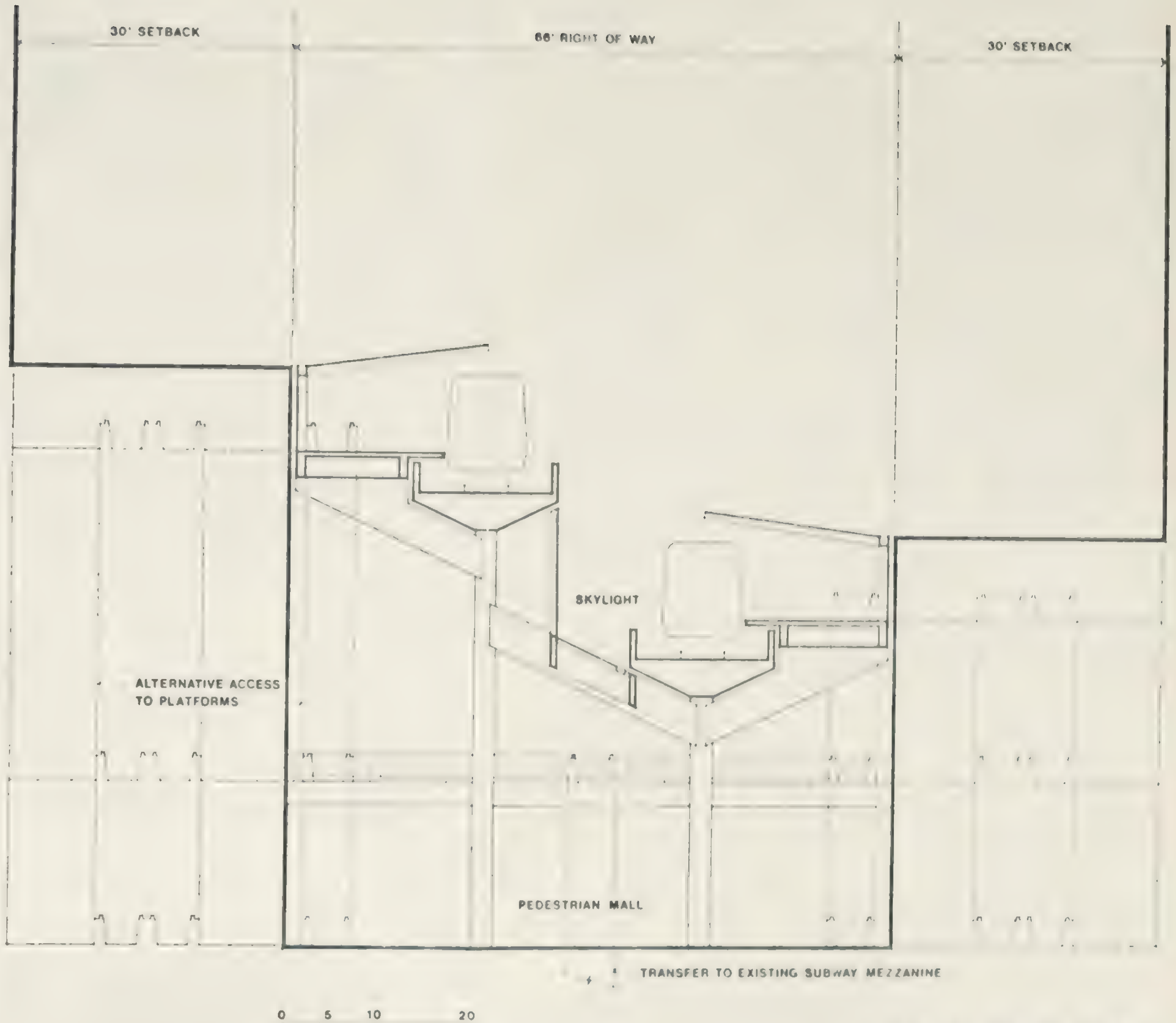
ATFORMS

VAN BUREN

FIG. IX. C. 4. 4



SECTION BETWEEN PLATFORMS



SECTION AT PLATFORMS

VAN BUREN

FIG. IX. C.4. 4

5. Passenger Service

Alternative 12 would have similar service trade-offs to those discussed for Alternative 11. Applicable to this scheme would be trade-offs discussed under points a, b, c, 3 and f.

In addition, the present Dan Ryan/Lake direct service would be discontinued in favor of circling the Dan Ryan service around the loop and connecting the Lake service to the Monroe Street line that would proceed, at the end of Monroe, southward to McCormick Place.

The fact that the loop is an elevated line would render inter-line transfers more time-consuming than those between intersecting underground lines. Moreover, side platforms on alternative 12 would make intra-station transfers more time-consuming than with a center platform as in Scheme 11 or the proposed project.

Patronage estimates for Alternative 12 are the same as those for Alternative 4.

D. Proposed Scheme

Description and environmental implications of the proposed scheme have been discussed in detail in the body of this report.

X. Construction Alternatives

In the loop area the close spacing of stations and the design criteria for those stations dictate construction by the cut and cover method. Decking of the roadway, maintenance of access, and maintenance of utilities and other services that will be provided during construction are described elsewhere in this analysis.

Leaving the loop, the Chicago River crossings are to be constructed by tunneling methods, as is the Randolph Street Westerly Extension. Tunnel construction will provide the minimum disruption to street traffic, utilities and services, and access to adjacent properties. The Franklin Street extension southward will be constructed in the median of the proposed freeway and will thus have only minimum impact on the area traversed. The Orleans Street Northward extension and the distributor north and west of the river area generally planned as cut and cover construction although later engineering studies could determine the feasibility of constructing sections between stations by tunneling if increased costs are justified by traffic and access disruptions during construction.

The southerly extension of the distributor will be constructed in an existing railroad right of way and thus has minimal impact other than coordination with present railroad operations.

XI. CITIZEN PARTICIPATION AND ON-GOING ENVIRONMENTAL REVIEW

A. Citizen Participation

The Chicago Urban Transit District process for citizen participation has, to date, involved a dual process of developing a thorough understanding of citizens' objectives and demographic characteristics and of establishing direct contact with citizens through personal interviews and the use of questionnaires. The objective of this process is to translate citizen (social) need into the physical design and implementation of the CUTD transit project. By pursuing this approach, citizens have had a chance to influence scheme and route selection, system configuration, etc., at project start-up so that at subsequent points in time where citizens are asked to comment, they are responding to a system which already has built in (to the extent possible) their needs and desires. In conjunction with the inventory of citizen and community characteristics and needs analysis, interviews have been conducted and questionnaires developed and tested. (A copy of the Transit Questionnaire is included in Appendix 5) This initial questionnaire was handled as a test so that improvements and changes are made before a complete sample questionnaire is implemented. This approach again reflects the focus of citizens' participation in the CUTD project. As a result of having tested the instrument and having requested critical

comments from a range of citizens, and as a result of reviewing those questionnaires that have been completed, we are able to revise the instrument so that it better focuses on citizens' interest and needs in the affected communities.

Interviews have also been conducted with a cross-section of public agency and community heads. The objective here was to ascertain from a policy and program context community needs, interests, and objectives and how the introduction of transit or change of current transit will affect these communities.

A continued and well developed citizens' participation process is viewed as essential in the continued development of this transit project. Therefore, a program will be continued which, in addition to the questionnaire, additional interviews, and the public hearing process, will undertake to assure citizen input and to provide for the direct exchange of ideas within the decision-making process. The major components of this citizens' participation program will be a series of community forums to be held at key points throughout the planning phase of the system to provide active and continued opportunity for participation in a direct and continued way. More specifically, the purposes of the community forum will be to:

1. Determine community concerns, aspirations and desires relative to the impact of the selected alternative.

2. Determine the relative importance of perceived impacts (social, environmental, economic, and aesthetic) as a prerequisite to setting community objectives.

3. Engender an appreciation on the part of all parties involved, the restraints to be considered, and the planning of such a major transportation facility.

4. Provide better understanding on the part of the general public as to the trade-offs which must be made in determining the cost and benefits of the alternatives developed in the study.

5. Elicit citizen input regarding the respective merits and demerits of the various alternatives so that social impacts can be framed realistically.

The selected alternative will be refined on a continuous basis based on citizens' need, input, and realistic constraints of the project. During the final community forums and before the writing of the final report regarding project implementation, every view of the evaluation process utilized to select the recommended alternative will be described in detail.

Consideration will be given to the utilization of other techniques for community contact as have been effectively utilized in the City of Chicago's range of public works activities.

B. On-Going Environmental Review

CUTD is committed to monitoring and evaluating the environmental impact of the CCATP project during various stages of planning, design, construction, and final operation. The vehicle chosen by the District to accomplish this objective is a "before and after" study. A study design is being prepared outlining the various environmental parameters to be measured, methods of measurements and continuous updating, and ways and means of differentiating between impacts resulting from the implementation of the proposed project and those resulting from other developments.

Measurements of existing conditions, (i. e. before project has been approved) are being collected from various local government organizations as well as from private agencies and special purpose committees. Such information is being synthesized, correlated and catalogued in a way suitable for continuous updating at periodic intervals as conditions warrant.

In addition, the District is working very closely with city and state and federal departments associated with the Greater Chicago Area environmental issues. Planning for the project is closely coordinated with such organizations as the Lake Front Development Association, Central Area Coordinating Committee, as

well as many others, to make sure that the maximum beneficial environmental impact could be realized from the implementation of the proposed project.

XII. SECTION 4(f) STATEMENTS

Section 4(f) statements have been prepared for those parklands impacted by project construction. Statements have been prepared for the following parklands identified by area on Fig. I. 2:

Grant Park	(Area 1)
Lake Shore Park	(Area 2)
Clybourn Playlot	(Area 3)
Sojourner Truth Playlot	(Area 4)
Union Park	(Area 5)

GRANT PARK
4(f) STATEMENT

I. EXISTING CONDITIONS

A. Size and Location

Grant Park is 303 acres of land located in the center of Chicago adjacent to the Central Business District. The park separates the downtown area and the shore of Lake Michigan. Boundaries are Michigan Ave., Randolph Drive, Lake Shore Drive and E. McFetridge Drive.

B. Type of Area

Grant Park is used for recreation, open space and cultural activities. The park is also a historic site by virtue of the fact that it was one of the first examples of park planning and it is now a symbol of the City of Chicago.

C. Available Activities

Available activities in Grant Park include ball playing, walking, bicycle riding, and sightseeing. In addition there are the Art Institute, Shedd Aquarium and Field Museum to visit and concerts to attend at the Music Bowl.

D. Existing and Planned Facilities

Recreational facilities include 3 athletic fields, 2 baseball diamonds, 18 softball diamonds and 12 tennis courts, as well as walking and bicycle riding paths. Cultural facilities include

The Art Institute, Shedd Aquarium, the Field Museum and the Music Bowl.

There are several historic sites in the park including Buckingham Fountain, the Lincoln Monument, the Columbus Memorial, and the Logan Monument. Plans for improvement include replacing the Monroe Drive parking lot with an underground facility and adding an ice skating rink, tennis courts, chess tables and walkways above the parking garage.

Usage

Average daily playing field users number 2000-2500 in summer months and about 1000 in the remainder of the year. Also there are many other people in the Park as spectators, joggers, etc. Yearly cultural patronages are as follows:

Music Bowl	300,000
Field Museum	1,213,600
Shedd Aquarium	885,727
Art Institute	1,365,825

Patronage

The nature of Grant Park, which is located in the downtown area and which in itself is a famous landmark in Chicago means that users of the park are from all over the world. The recreational facilities are generally used by local people, however, the cultural and historic nature of the park draws tourists from around the United States and the world. The tourist appeal of Grant Park attracts people of all ages, races,

and nationalities.

G. Relationship to Other Lands With Similar Use In The Area

Grant Park is the central point in a series of lakefront parks along the shore of Lake Michigan. The park is an integral part of the city plan of Chicago and its park system. Grant Park, as well as Jackson Park, Burnham Park, and Lincoln Park are used to preserve the natural beauty of the lake shore and to provide open space for otherwise crowded central Chicago. Grant Park, due to its proximity to the CBD, is the focal point of this series of parks and is probably the most extensively used park in Chicago.

H. Access

Access to the park is easily gained by foot, auto or commuter railroads. Pedestrians have access from the west by crossing Michigan Ave. at any point in the Loop area. Autos can enter the park from several points including Michigan Ave., Lake Shore Drive, Randolph Drive, Monroe St., E. Jackson, Balbo or Columbus Drive. Two large underground garages and a large open parking lot are adjacent to the park. The Illinois Central Railroad and the South Shore Line have commuter rail stations located in the park.

I. Ownership

Grant Park is owned and maintained by the Chicago Park District.

J. Deed Restrictions and Reversionary Clauses

None

K. Significance of The Land

L. Unusual Characteristics

Grant Park is located in the Central Business District of Chicago. Its natural beauty and proximity to downtown makes it among the most valuable tracts of land in the United States. The location of the park provides spectacular views of both the Chicago skyline and Lake Michigan.

M. Consistancy of Use With Community Objectives

As previously alluded to in other sections, Grant Park is a focal point for activities in the Chicago area and the Midwest region. The need for open space in downtown areas is fulfilled by parks such as Grant Park. The natural beauty of the park greatly enhances the appearance of the Loop area, especially as viewed from the lake front. As a part of the Chicago City plan, Grant Park serves the important function of providing open space and natural beauty to the crowded downtown area.

N. Prior Use of Federal Funds

Federal funds have been used in Grant Park for original Lake Shore Drive improvements and for PWA and WPA projects during the depression.

II. EFFECTS OF THE PROPOSED PROJECT ON THE LAND

A. Location and Area of Affected Land

The affected portion of Grant Park is located along Monroe Street between Michigan Ave. and the Illinois Central Railroad tracks. Subway lines are planned to require easement under two small triangular parcels totaling about 1700 square feet in area. Also there will be subway entrances built in the sidewalk along Monroe St. Since the construction will be a cut-and-cover process, the disruption will be temporary, probably lasting about two years. The park land then will be returned to its original state.

B. Detailed Map

See sheet 6-71 of Volume II

C. Facilities Affected

None of the park facilities will be affected .

D. Increase or Decrease in Physical Effect of Users of the Land

Direct physical disruption will occur during excavation, site preparation and construction. Also disruption from construction vehicles, equipment and material storage as well as potential nuisance and hazards from noise, vibrations and dust generated by construction vehicles and equipment is anticipated. No physical disruption to the park after completion of the project is expected.

II. EFFECT ON PEDESTRIAN AND VEHICULAR ACCESS

During construction vehicular access to the park via Monroe St. will be blocked for short periods of time. Since Monroe St. is only one of the many entrances to Grant Park, access to the park will not be seriously affected.

III. ALTERNATIVES TO USING PARK LANDS

The alignment along Monroe St. does not affect the park land at any point. The affected land is over the connections between the north-south line of the Distributor and the east-west line of the Distributor. The only alternative to the proposed system is to remove the connections and provide a transfer station at the point of crossing of the two lines.

IV. STATEMENT OF NO FEASIBLE AND PRUDENT ALTERNATIVES

There exists no feasible and prudent alternative to the present alignment because if the connections between the two Distributor lines were to be removed, a transfer station would have to be provided. Such a transfer station would be very costly and operations would be much less efficient. Also if the alignment were shifted out of Monroe St. there would be considerably more park lands affected.

V. MEASURES TO MINIMIZE HARM

A. Agency Responsible for Affected Land

Chicago Urban Transportation District

B. Provisions for Replacing Affected Lands or Facilities

None

C. Project Design Features to Minimize Harm

Efforts to lessen adverse effects may include special safety and construction management procedures to reduce ambient impacts, the reconstruction of the open space following cut-and-cover operations, and landscaping to return the affected area to its previous state.

Vehicular access on Monroe St. can be accomplished by the placing of decks over the construction as is done in many construction projects.

D. COORDINATION OF CONSTRUCTION TO PERMIT CONTINUAL USE OF FACILITIES

Monroe St. is the only facility to be affected by the projects. The placement of temporary decks during construction will insure continuous use of the street for both vehicle and pedestrians.

LAKE SHORE PARK
4(f) STATEMENT

I. EXISTING CONDITIONS

A. Size and Location

Lake Shore Park is 3.69 acres of land in the near north side of Chicago. It is bounded by E. Pearson St., Lake Shore Drive, E. Chicago Avenue, and the 122nd Artillery Armory.

B. Type of Area

Lake Shore Park is a recreational area.

C. Available Activities

Activities that can be conducted in the park include tennis, softball, football, basketball, jogging and ice skating.

D. Existing and Planned Facilities

Existing facilities include tennis courts, baseball diamonds, open playing fields, outdoor basketball courts, a jogging track and a fieldhouse containing a gymnasium.

E. Usage

The number of users vary from about 12,000 per month in winter to over 50,000 per month in summer. Average yearly usage is about 240,000 people.

F. Patronage

Patronage of Lake Shore Park comes from the entire near north area and especially the adjacent campus of the Northwestern University Medical School. The park is used extensively in Park District's programs.

G. Relationship to Other Similarly Used Lands in the Vicinity

Lincoln Park and Grant Park are the nearest parks with playing fields or tennis courts available in the area. Both parks are within walking distance by the residents in nice weather.

H. Access

Automobile access to Lake Shore Park is provided by E. Pearson St., Lake Shore Drive, DeWitt Place, Fairbanks Ct. and E. Chicago Avenue. Pedestrian access is possible from sidewalks along these streets. The park is not enclosed and pedestrian access is possible from all sides.

I. Ownership

Lake Shore Park is owned by the Chicago Park District.

J. Deed Restrictions

Research, thus far, has found no indication of deed restrictions.

K. Significance

L. Unusual Characteristics

The existence of this park is somewhat unusual in that it is

located in a high land value area that has experienced much intensive development. It is fortunate that this open space has withstood the development pressure that has been felt throughout the Near North Area.

M. Consistency with Community Objective

Lake Shore Park provides valuable recreation area and open space and should continue to do so. Since the impacts due to the project will be temporary and none of the park land will be taken permanently, the requirement of long term availability of the park to the neighborhood will not be violated.

EFFECTS OF THE PROPOSED PROJECT ON THE LAND IN QUESTION

A. Location and Area of Land to be Used

Land taken will comprise approximately 6600 sq. ft. (220 ft. x 30 ft.) running north-south along the far west edge of the park adjacent to the National Guard Armory. Two small segments of sidewalk on E. Pearson and E. Chicago adjacent to the park will also be taken by the project.

B. Detail Map Showing Project Development with Land

to be attached

C. Facilities Affected

Construction will require the temporary taking of the tennis courts at the west end of the park.

D. Probable Increase or Decrease in Physical Effects

Direct physical disruption of the site during demolition, excavation, site preparation, new construction and related disruption from construction vehicles, equipment and material storage in addition to potential nuisance and hazards from noise, vibration and dust generated by vehicles and construction equipment is anticipated. All this physical impact will cease once construction has terminated. After project completion, portions of the park may be subjected to minor levels of vibration due to the operation of trains in the subway segment.

E. Effects on vehicular and Pedestrian Access

Vehicular access to the park on E. Chicago and E. Pearson Streets will be impaired during construction. Wood decking will be placed over the subway cuts in these streets as soon as possible to help maintain some level of vehicular access. Pedestrian access on the sidewalks running east-west and the north and south sides of the park will be impaired in general by the overall disruptive effect of the construction operation. All access impairments will last only as long as construction.

III. ALTERNATIVES TO THE USE OF THIS LAND

The subway segment impacting Lake Shore Park is part of a proposed north-south transit line serving the Near North Area of Chicago-an area of demonstrated need for

public transit. As proposed the subway will run north on Fairbanks Ct., cross the park, run north on DeWitt Place and then turn west making a loop on E. Walton , N. Rush and E. Chicago Sts. A possibility does exist of moving the alignment west from DeWitt and Fairbanks Ct. alleviating the impacts on the park. At the same time, some service would be provided to the Near North Area.

V. STATEMENT OF NO FEASIBLE AND PRUDENT ALTERNATIVE

The subway alignment along Fairbanks Ct. and DeWitt Place was chosen because it offered the best service to the Northwestern Medical Center Complex and to many of the high rise residences in the area. In addition, possible north-south alignments to the west, which do not impact the park would, due to the discontinuous street pattern, impact commercial or residential properties, necessitating relocation. For these reasons and because the park land impacted will not be taken permanently, it is felt that no feasible and prudent alternative exists to the temporary use of the park land.

V. MEASURES TO MINIMIZE HARM

A. Agency Responsible for Affected Land

Chicago Urban Transportation District

B. Provisions for Replacing Affected Lands or Facilities

All lands at facilities taken or destroyed in the course of construction will be returned to at least their original

condition as soon as the construction procedure allows.

C. Project Design Features to Minimize Harm

Efforts to lessen adverse effects may include special safety and construction management procedures to reduce ambient impacts, the reconstruction of open space and facilities following cut-and-cover operations and landscaping to return the affected area to its previous state. Impairment of vehicular access on Fairbanks Ct., DeWitt Pl., E. Chicago and E. Pearson can be minimized during construction by the placing of wood decking over the subway cuts as is frequently done in cut-and-cover projects.

D. Coordination of Construction to Permit Continual Use of Facilities

Other areas of the park (the majority) besides those directly impacted by construction will be available for use during subway construction. Vehicular access will be maintained during construction as was described in the previous section.

E. Evidence that Provisions of Section 6(f) Have Been Satisfied

CLYBOURN PLAYLOT 4(f) Statement

I. EXISTING CONDITIONS

A. Size and Location

Clybourn playlot is approximately .46 acres of paved land located on the north side of North Clybourn Street near the corner of N. Sheffield Avenue.

B. Type of Area

Clybourn playlot does provide some open space but is mainly used as a children's recreation area.

C. Available Activities

Available activities include basketball, and the use of children's playing equipment.

D. Existing and Planned Facilities

Existing and planned facilities include children's playground equipment (swings, etc.) and a basketball court. In addition the asphalted surface can be used for other children's activities.

E. Usage

It is estimated that the average daily usage is about 50 people in summer months and almost none in winter months.

F. Patronage

Use of the park is primarily limited to children of the surrounding low income neighborhood.

G. Relationship to Other Lands with Similar Use in the Area

Both Adams playground and Northwestern playlot are within walking distance of the residents in the area. Both playgrounds are similar to the Clybourn St. playlot in use.

H. Access

Direct automobile access is obtained via N. Clybourn Street. Pedestrian access is possible from the sidewalk along N. Clybourn, and from the alley between N. Bissel Street and N. Clybourn. Transit access is possible from the W. North Avenue transit station of the Evanston-Ravenswood elevated line.

I. Ownership

The Clybourn playlot is owned by the Chicago Park District.

J. Deed Restrictions

Research, thus far, has found no indication of deed restriction.

K. Significance

L. Unusual Characteristics

There are no unusual characteristics of this property that would enhance its value.

M. Consistency with Community Objectives and Planning

Clybourn playlot provides valuable recreation area to the children in the local neighborhoods and should continue to provide this service in the future. Since the impacts of the project will be temporary, with no parkland permanently taken, and since the project itself will provide improved

transit service to the neighborhood, it is not felt that the temporary taking of the parklands violates community goals.

N. Prior Use of State or Federal Funds

None

II. EFFECTS OF THE PROPOSED PROJECT ON THE LAND IN QUESTION

A. Location of the Proposed Project on the Land in Question

Only a small corner of the playlot will actually be temporarily taken for project construction. However, due to the small size of the park, its entire operation will probably have to be shut down during construction. The playlot will be returned to its original use upon completion of construction.

B. Detail Map Showing Project Involvement with Land

to be attached

C. Facilities Affected

For reasons described in Section II.A.of this statement, all facilities of the playlot will have to be shut down during the period of construction only.

D. Probable Increase Or Decrease in Physical Effects

Direct physical disruption of the site during demolition, excavation, site preparation, new construction and belated disruption from construction vehicles, equipment and material storage, in addition to potential nuisance and hazards from noise, vibration and dust generated by vehicles and construction equip-

ment and operations is anticipated. This physical impact will cease once construction has terminated. Additionally, the removal of sections of the Ravenswood-Evanston elevated line, made possible by the construction of the project, will result in some decrease in noise levels in the park area, due to the elimination of trains operating aboveground.

E. Effect on Vehicular and Pedestrian Access to Land

Cut and cover subway construction in and along N. Clybourn Street in the area of the playlot will impair both vehicular and pedestrian access.

III. ALTERNATIVES TO THE USE OF THIS LAND

An operational goal of this subway line is to provide service along a common right-of-way with the existing State Street subway line, and to connect with the Evanston-Ravenswood line, as does the existing State Street subway. Given these conditions, no other alternative to the use of this land exists.

IV. STATEMENT THAT THERE EXIST NO FEASIBLE AND PRUDENT ALTERNATIVES

For reasons stated in Section III of this Statement, it is believed that no feasible and prudent alternative exists to the temporary use of this land.

V. MEASURES TO MINIMIZE HARM

A. Agency Responsible for the Affected Lands

Chicago Urban Transportation District.

B. Provisions for Replacing or Compensating for the Loss of the Affected Lands and Facilities

As far as is known, temporary relocation of the playground facilities, during construction is not anticipated. Permanent replacement of the facilities will not be necessary since the land will only be used during construction.

C. Project Design Features Develop to Enhance the Affected Land or to Lessen or Eliminate Adverse Effects

Efforts to minimize harm may include special safety and construction management procedures to reduce ambient impacts; decking of access streets to insure some vehicular access; and the reconstruction of open space following cut and cover. Construction in cooperation with community agencies to meet park improvement needs where possible.

D. Coordination of Project Construction

Project construction should require the temporary closing of playground facilities. As mentioned in the previous section, wood decking will be used over subway cuts on N. Clybourn to maintain some degree of automobile access to the area.

E. Evidence that Section 6(f) Has Been Complied With

SOJOURNER TRUTH SCHOOL
4 (f) STATEMENT

I. EXISTING CONDITIONS

A. Size and Location

The playlot in front of the Sojourner Truth School is less than 1 acre in area. The playlot is located at the corner of Clybourn and Ogden Streets. This is near the Cabrini-Green public housing project.

B. Type of Area

The Sojourner Truth playlot is a small recreational area.

C. Available Activities

Activities available include swinging and climbing on bars for small children.

D. Existing and Planned Facilities

Existing facilities are a fenced asphalt covered area with swings and a Jungle Gym set. There is also some vacant space around the asphalt playlot.

E. Usage

It is estimated 40-50 children use playlot daily in summer months, while almost none use the playlot in the winter months.

F. Patronage

The nature of the facilities make the majority of the users small children. Also the location near an elementary school is convenient for small children.

G. Relationship to Other Playlots in the Area

There are two other playlots around the Sojourner Truth School. One is between two of the school buildings and it has more swings and Jungle Gym sets. Stanton Park, a Chicago Park District facility, is immediately behind the school . Facilities in Stanton Park include an indoor swimming pool, basketball courts, baseball diamonds and playing fields. Therefore the affected playlot is just a small part of the playgrounds at the Sojourner Truth School.

H. Access

Access to the playlot can be gained from any direction by pedestrians. Vehicular access is made directly from Clybourn or Ogden Streets.

I. Ownership

Chicago Housing Authority

J. Deed Restrictions

Research, thus far, has shown no indication of deed restrictions.

K. Determination of Significance by Local Authorities

L. Unusual Characteristics

The land used for the playlot has no usual characteristics to enhance its value.

M. Consistancy of Use

The playlot's location next to the school and near the public housing project makes it very convenient for use by small children. The playlot is the best use for land located on school

property.

N. Prior Use of State or Federal Funds

None

II. EFFECTS OF THE PROPOSED PROJECT ON THE LAND IN QUESTION

A. Location and Area of Affected Land

The land affected is a strip of land approximately 10 to 20 feet wide extending from the curb on Clybourn Ave. The construction will be a cut-and-cover process, therefore the intrusion will be temporary, probably lasting about 2 years.

B. Detailed Map

C. Facilities Affected

The asphalt area with swings will probably not be taken by the construction, however, the potential danger for small children near construction equipment which probably necessitate the closing of the playlot.

D. Probable Physical Effects on Users

Direct physical disruption will occur during excavation, site preparation and construction. Also disruption from construction vehicles, equipment, and material storage as well as potential nuisance and hazards from noise, vibrations, and dust generated by construction vehicles and equipment is anticipated. No physical disruption to the playlot after completion of the project is expected.

E. Effect on Pedestrian and Vehicular Access

During construction, access from Clybourn St. will be blocked for short periods of time. Pedestrian access will be more difficult from the north and east directions during construction.

III. ALTERNATIVES TO USING PARK LANDS

The proposed alignment near the Sojourner Truth School is alongside the present North-South Subway line on both sides of the existing subway . The possible alternatives are that the proposed subway be built above or below the existing subway.

IV. STATEMENT OF NO FEASIBLE AND PRUDENT ALTERNATIVES

It is impossible to build another subway above the existing subway because there is not enough ground cover. It would be very difficult to put the proposed subway under the existing subway because the existing structure would have to be supported during construction and subway traffic would be interrupted during certain stages of construction . The proposed alignment allows for uninterrupted service as well as easier access from the street and transfers between lines.

V. MEASURES TO MINIMIZE HARM

A. Agency Responsible for Affected Land

Chicago Urban Transportation District

B. Provisions for Replacing Affected Lands of Facilities

None, at present time.

C. Project Design Features to Minimize Harm

Efforts to lessen adverse effects may include special safety and construction management procedures to reduce ambient impacts, the reconstruction of the open space following cut-and-cover operations, and landscaping to return the affected area to its previous state. Vehicular and pedestrian access can be accomplished by the placing of decks over the construction as is done in many construction projects.

D. Coordination of Construction to Permit Continual Use of Facilities

The placing of decks over the construction would insure continual access to the playlot during construction. However, as mentioned before, because of the potential danger to small children and the proximity to similar facilities, the playlot will probably be closed anyway.

UNION PARK 4(f) STATEMENT

I. EXISTING CONDITIONS

A. Size and Location

Union Park is approximately 17.37 acres of land located west of the Chicago CBD. It is bounded by Lake, Randolph, Ashland, Washington, 0gden and Warren Streets.

B. Type of Area

Union Park is used for recreation and open space.

C. Available Activities

Available activities include numerous sports such as basketball, football, tennis, swimming, ice skating, use of childrens playground equipment, and the use of a community center for meetings and similar activities.

D. Existing and Planned Facilities

Existing facilities include baseball diamonds, football fields, tennis and basketball courts, childrens play equipment (swings etc.) a community center, and a fieldhouse, indoor gymnasium and outdoor swimming pool.

E. Usage

Average daily usage is estimated to be about 60 people in winter months and 120 in summer months.

F. Patronage

Use of the park is primarily by local residents. The neighborhood is primarily low income, with a significant number of public housing units in the vicinity of the park.

G. Relationship to Other Lands With Similar Use in the Area

The only other land with similar facilities in the neighborhood is Skinner Park. These two parcels provide the only recreation area and significant open space for the community and as such are very important in helping to fulfill the social needs of the neighborhood.

H. Access

Automobile access to Union Park is via the five boundary streets mentioned in Section I. A (Size and Location) of this statement. Pedestrian access is easy from any point surrounding the park. Public transit access is provided by the Lake St. bus line (#16) and by way of the Ashland Ave. station of the Lake St. rapid transit line.

I. Ownership

Union Park is owned by the Chicago Park District.

J. Deed Restrictions

Research, thus far, has found no indication of deed restrictions.

K. Significance

L. Unusual Characteristics

There are no unusual characteristics of this property that would enhance its value.

M. Consistency With Community Objectives and Land Use Planning

Union Park provides valuable recreation area and open space for its neighborhood, and should continue to do so in the future. Since the impacts due to the project will be temporary, and none of the park land will be taken permanently, the requirement of long term availability of the park to the neighborhood will not be violated.

N. Prior Use of State or Federal Funds

None

II. EFFECTS OF THE PROPOSED PROJECT ON THE LAND IN QUESTION

A. Location and Area of Land to be Used

Land taken will comprise approximately 500 ft. of a pedestrian sidewalk and a small parcel of land (approx. 1650 sq. ft.) at the north corner of the park where Lake and Randolph Streets merge. This property will be taken only during construction of the project and will be returned to its original use upon completion of construction.

B. Detail Map Showing Project Involvement with Land

To be attached.

C. Facilities Affected

Portions of a sidewalk adjacent to the park will be temporarily removed from use. None of the facilities of the park itself will be affected.

D. Probable Increase or Decrease in Physical Effects

Direct physical disruption of the site during demolition, excavation, site preparation, new construction and related disruption from construction vehicles, equipment and material storage in addition to potential nuisance and hazards from noise, vibration and dust generated by vehicles and construction equipment and operations is anticipated. All this physical impact will cease once construction has terminated. Additionally, the removal of sections of the Lake St. elevated line made possible by the construction of the project, will result in a decrease in noise levels in the park area, due to the elimination of trains operating above ground.

E. Effect on Vehicular and Pedestrian Access to Land

Pedestrian access on the north edge of the park, as well as vehicular traffic on portions of Lake and Randolph Sts. accessing the park, will be impaired or curtailed during construction phases of the project only.

III. ALTERNATIVES TO THE USE OF THIS LAND

This subway segment is part of a transit link connecting a proposed east-west subway in the right-of-way of Randolph St. with the existing Lake St. elevated line. As such, great deviations in this segment's alignment are not possible.

Possible route alternatives would consist of minor movements of the right of way to the north or south.

IV. STATEMENT THAT THERE EXIST NO FEASIBLE AND PRUDENT ALTERNATIVES

As mentioned in the previous section the alignment of this subway segment is restricted by connections to other facilities that must be made at each of its ends. Any minor alignment shift to the north would necessitate the destruction of some commercial buildings on Lake St. A minor alignment shift to the south, would impact a greater area of the park than does the proposed alignment. The proposed alignment follows the right of way of Randolph St. as closely as possible and only impacts the park so that a negotiable curve can be built in the subway. Since no park land is to be taken permanently by the project, and considering the alternatives available, it is believed that no feasible and prudent alternative exists.

V. MEASURES TO MINIMIZE HARM TO THE AFFECTED LANDS

A. Agency Responsible for the Affected Lands

Chicago Urban Transportation District

B. Provisions for Replacing or Compensating for the Loss of the Affected Lands and Facilities

No provisions were made since land or facilities are not to be taken permanently.

C. Project Design Features Develop to Enhance the Affected Land or to Lessen or Eliminate Adverse Effects

Efforts to minimize harm may include a phased construction to best avoid disruption during hours and seasons of peak intensive recreation usage; special safety and construction management procedures to reduce ambient impacts; decking of access streets to insure some vehicular access; and the reconstruction of open space, following cut and cover construction, in cooperation with community agencies to meet park improvement needs where possible.

D. Coordination of Project Construction

Due to the small area of the park to be temporarily taken, a majority of the park facilities will be available for continued use during construction. As mentioned in the previous section, wood decking will be placed over subway cuts in sheets, to maintain some level of vehicular access to the park facilities.

E. Evidence that Section 6(f) Has Been Complied With

APPENDIX 1

LISTING OF HUMAN SERVICES, INSTITUTIONS AND ORGANIZATIONS IN THE CUTD AREA

SOCIAL SERVICES
AVAILABLE TO THE INDIGENT

The agencies listed on the social services list are all direct services, giving some service to individuals who come to that office, and not central administrative headquarters.

The list includes state and private institutions which give financial aid and counseling, psychological and legal counseling, and medical services not included on the hospitals and clinics list, some of which are part of multiple service agencies.

	Code
COUNSELING Children, Youth, Elderly, Family, and Multiple Community Service	000
FINANCIAL, HOUSING & EMPLOYMENT ASSISTANCE	100
MEDICAL	200
LEGAL	300
OTHER: Public Libraries and Park District Programs	400

COUNSELING AGENCIES - 000

Loop

001. AMERICAN FRIENDS SERVICE COMMITTEE, 407 S. Dearborn
002. ARCHDIOCESAN COUNCIL OF CATHOLIC WOMEN, FAMILY CONSULTATION SERVICE, 506 S. Wabash
003. BIG BROTHERS OF METROPOLITAN CHICAGO, 343 S. Dearborn
004. BIG SISTERS, 203 N. Wabash
005. CHICAGO ASSOCIATION FOR RETARDED CHILDREN, 343 S. Dearborn
006. CHICAGO INSTITUTE OF PASTORAL CARE, 116 S. Michigan
007. CHICAG YOUTH CENTERS, YOUTH ACTION, 540 W. Harrison

008. CHILD AND FAMILY SERVICES OF CHICAGO HOME FOR THE FRIENDLESS, 234 S. Wabash
009. CHRISTIAN SERVICEMEN'S CENTER, 646 S. State
010. COMMUNITY REFERRAL SERVICE, 64 E. Jackson
011. EVANGELICAL CHILD WELFARE AGENCY, 127 N. Dearborn
012. FAMILY FINANCIAL COUNSELING SERVICE OF GREATER CHICAGO, 192 N. Clark
013. INFORMATION CENTER FOR THE AGING, 74 E. Jackson
014. INSTITUTE FOR PSYCHOANALYSIS, 180 N. Michigan
015. JEWISH FAMILY AND COMMUNITY SERVICE, 1 S. Franklin
016. JOHN HOWARD ASSOCIATION, 537 S. Dearborn
017. LAKE BLUFF/CHICAGO HOMES FOR CHILDREN, 77 W. Washington
018. LUTHERAN CHILD AND FAMILY SERVICES, 59 E. Van Buren
019. MAYOR'S OFFICE OF SENIOR CITIZENS, 223 N. Michigan
020. SCHOLARSHIP AND GUIDANCE ASSOCIATION, 205 W. Wacker
021. TRAVELERS AID, IMMIGRANT SERVICE, 22 W. Madison
022. UNITED CHARITIES OF CHICAGO: FAMILY SERVICE BUREAU
    a. Family Service Bureau, 64 E. Jackson
    b. Inner City Office, 373 S. Dearborn
       Service for the Aged, " "
       Camp Application Service," "
023. YMCA
    a. High School 19 S. La Salle
       Manpower Project " "
       Jobs " "
    b. College, 211 W. Wacker
    c. Hotel, 826 S. Wabash
       Neighborhood Youth Corps
024. YWCA, YOUTH GUIDANCE, 37 S. Wabash

Near North Side

025. AFRO-AMERICAN COMMUNITY FAMILY SERVICES, 440 W. Division
026. CHICAGO URBAN LEAGUE, NORTH SIDE OFFICE, 1336 N. Sedgwick
027. CHICAGO YOUTH CENTER LOWER NORTH, 1000 N. Sedgwick
028. JAPANESE-AMERICAN CITIZEN'S LEAGUE, MIDWEST OFFICE, 21 W. Elm
029. JUVENILE PROTECTIVE ASSOCIATION, 12 E. Grand
030. LUTHERAN WELFARE SERVICE OF ILLINOIS
    a. Cabrini Head Start, 364 W. Oak
    b. Holy Family Head Start, 542 W. Hobby
031. NEAR-NORTH FAMILY GUIDANCE CENTER, 12 E. Walton
032. THE PLACE, NEAR NORTH, 449 W. North
033. SALVATION ARMY
    a. Correctional Services Bureau, 875 N. Dearborn
    b. Family Service Division, 10 E. Pearson
    c. Men's Social Service Department, 509 N. Union
034. S.E.A.R.C.H., 1441 N. Cleveland
035. THRESHOLDS, 1153 N. Dearborn

Near West Side

036. NEAR WEST SIDE COMMUNITY COMMITTEE, 628 S. Racine
037. ADDICTION CONSULTATION & EDUCATION SERVICES, 126 N. Desplaines
038. AMALGAMATED DAY CARE CENTER, 323 S. Ashland

West Town

039. ASPIRA OF ILLINOIS, 767 N. Milwaukee
040. CHICAGO DEPARTMENT OF HUMAN RESOURCES, COMMUNITY SERVICES DIVISION, 1123 N. Ashland
041. ERIE NEIGHBORHOOD HOUSE, 1347 W. Erie
042. NEAR NORTHWEST CIVIC COMMITTEE, 1329 W. Grand
043. NORTHWESTERN UNIVERSITY SETTLEMENT ASSOCIATION, 1400 August Boulevard
044. POLISH WELFARE ASSOCIATION, 1303 N. Ashland
045. UNIVERSITY OF ILLINOIS CO-OP EXTENSION SERVICE, AREA III, 767 N. Milwaukee
046. YMCA, URBAN PROGRAMS, NORTHSIDE OFFICE, 1123 N. Ashland

Lower West Side

047. MODEL CITIES, CHICAGO COMMITTEE ON URBAN OPPORTUNITY, HALSTED URBAN PROGRESS CENTER, 1935 S. Halsted
048. GADS HILL CENTER & 18th St. Branch, 1641 W. 18th
049. NEIGHBORHOOD SERVICE ORGANIZATION, 1831 S. Racine
050. PILSEN NEIGHBORS COMMUNITY COUNCIL, 1443 W. 18th
051. PILSEN COMMUNITY MENTAL HEALTH CENTER, 1624 W. 18th
052. ILLINOIS DEPARTMENT OF LABOR, EMPLOYMENT SERVICE, 1935 S. Halsted

FINANCIAL, HOUSING, AND EMPLOYMENT ASSISTANCE AVAILABLE TO THE INDIGENT - 100

Loop

101. B'NAI B'RITH CAREER GUIDANCE AND YOUTH ORGANIZATION, 203 N. Wabash
102. CHICAGO HOUSING AUTHORITY, LEASING SERVICE, 223
103. COOK COUNTY DEPT. OF PUBLIC AID, PUBLIC ASSISTANCE, 318 W. Adams
104. HOME INVESTMENT FUND, 116 S. Michigan
105. ILLINOIS DEPT. OF LABOR
    a. State Employment Service, 165 N. Canal
    b. Appeals, 540 W. Randolph
    c. Unemployment Compensation Office No. 5, 1024 S. Wabash
    d. Professional Employment, 208 S. La Salle
    e. Central Industrial, 321 S. State
    f. Day Labor, 10 S. Jefferson
    g. Neighborhood Office, Westown, 1543 W. Division
106. ILLINOIS INDUSTRIAL COMMISSION, 160 N. La Salle
107. JEWISH VOCATIONAL SERVICE AND EMPLOYMENT CENTER, 1 S. Franklin
108. KNIGHTS OF COLUMBUS, EMPLOYMENT SERVICE, L&# W. Madison
109. PACIFIC GARDEN MISSION, 646 S. State
110. U.S. CIVIL SERVICE COMMISSION, JOB INFORMATION CENTER, 219 S. Dearborn
111. U.S. DEPT. OF HEW, SOCIAL SECURITY OFFICE, 22 W. Madison
112. U.S. DISTRICT COURT, OFFICE OF THE STANDING TRUSTEE, 53 W. Jackson
113. YMCA
    a. High School
    Manpower Project 19 S. La Salle
    Jobs

Near North Side

114. CHICAGO DEPT. OF PUBLIC AID, CABRINI OFFICE, 419 W. Oak
115. CHICAGO OPPORTUNITIES INDUSTRIALIZATION CENTER, 515 W. Oak
116. COOK COUNTY DEPT. OF PUBLIC AID, CABRINI OFFICE, 419 W. Oak
117. JAPANESE-AMERICAN CITIZEN'S LEAGUE, MIDWEST OFFICE, 21 W. Elm
118. REHABILITATION INSTITUTE OF CHICAGO, 401 E. Ohio
119. SALVATION ARMY
    a. Correctional Services Bureau, 875 N. Dearborn
    b. Men's Social Service Department, 509 N. Union

West Town

120. COOK DEPARTMENT OF PUBLIC AID, 1010 N. Milwaukee
121. ERIE NEIGHBORHOOD HOUSE, 1347 W. Erie
122. GOSPEL LEAGUE HOME, 955 W. Grand

Lower West Town

123. TRAVELER'S AID, SERVICIO J.E.A.N., 1831 S. Racine
124. ILLINOIS DEPARTMENT OF LABOR, EMPLOYMENT SERVICE, 1935 S. Halstead

MEDICAL AGENCIES - 200

Loop

201. CHICAGO BOARD OF HEALTH, Civic Center
    a. Central Mental Health Clinic
    b. Lead Poisoning Screening and Treatment Program
202. CHICAGO HEARING SOCIETY, 30 W. Washington
203. DE PAUL UNIVERSITY MENTAL HEALTH CLINIC, 25 E. Jackson
204. HEMOPHILIA FOUNDATION, MIDWEST CHAPTER, 327 S. La Salle
205. ILLINOIS DEPT. OF MENTAL HEALTH, SUBREGION THREE, 160 N. La Salle
206. PLANNED PARENTHOOD ASSOCIATION, 185 N. Wabash

Near North Side

207. AMERICAN DENTAL ASSOCIATION EMERGENCY SERVICE, 211 E. Chicago
208. AMERICAN RED CROSS, MID-AMERICA CHAPTER, 45 E. Ohio
209. CHICAGO BOARD OF HEALTH
    Infant Welfare Station #9, 880 N. Hudson
210. MIDWEST POPULATION CENTER, 100 E. Ohio
211. NEAR-NORTH CHILDREN'S CENTER, 1441 N. Cleveland

Near Westside

212. SIDNEY HILLMAN HEALTH CENTER, 333 S. Ashland

West Town

213. ERIE NEIGHBORHOOD HOUSE, 1347 W. Erie

LEGAL SERVICES - 300

Loop

301. AMERICAN CIVIL LIBERTIES UNION, 6 S. Clark
302. CIRCUIT COURT OF COOK COUNTY, Civic Center
303. ILLINOIS INDUSTRIAL COMMISSION, 160 N. LaSalle
304. LEGAL AID SOCIETY OF CHICAGO, 64 E. Jackson
305. U.S. DISTRICT COURT, OFFICE OF THE STANDING TRUSTEE, 53 W. Jackson
306. COMMUNITY LEGAL COUNCEL, 116 S. Michigan
307. CHICAGO VOLUNTEER LEGAL SERVICES FOUNDATION, 19 S. La Salle
308. SMALL CLAIMS COURT, Civic Center, 6th Fl.

Near North Side

309. CHICAGO COMMISSION ON HUMAN RELATIONS, 640 N. La Salle
310. LEGAL AID SOCIETY, NORTHWESTERN UNIVERSITY LEGAL AID CLINIC, 360 E. Superior

Lower West Side

311. LEGAL AID SOCIETY OF CHICAGO, 1413 W. 18th

OTHER: PUBLIC LIBRARIES & PARK DISTRICT PROGRAMS - 400

Loop

401. CHICAGO MUNICIPAL REFERENCE LIBRARY, City Hall
402. CHICAGO PUBLIC LIBRARY, Randolph & Michigan
403. USO CLUB, 64 E. Randolph

Near North Side

404. CHICAGO PARK DISTRICT
    a. Hudson, 421 W. Locust
    b. Seward, 375 W. Elm
    c. Stanton, 618 W. Scott
    d. Stanton, Schiller School, 640 W. Scott

405. CHICAGO PUBLIC LIBRARY, NEAR NORTH SUB-BRANCH, 451 W. North

West Town

406. CHICAGO PARK DISTRICT
    - a. Eckhart, 1340 W. Chicago
    - b. Pulaski, 1419 W. Blackhawk

Lower West Side

407. CHICAGO PARK DISTRICT, Dvorak, 1119 W. Cullerton
408. CHICAGO PUBLIC LIBRARY, PILSEN PARK BRANCH, 1842 S. Blue Island

DEMOGRAPHIC CHARACTERISTICS OF COMMUNITY AREAS

	North Michigan[1]		North Clark Street Area[2]		Cabrini-Green[3] Area		West Madison[4]		Taylor Street[5]	
	60	70	60	70	60	70	60	70	60	70
Total Population	24,826	32,652	17,384	11,014	39,672	29,314	18,436	5,876	18,072	6,453
% of Major Ethnic Grouping	97.4 (White)	97.3 (White)	84. (White)	89. (White)	55.8 (Black)	85. (Black)	64.1 (White)	60. (White) 40. (Black)	75.3 (White)	95. (White)
% Under 19 Years of Age	8%	3%	16%	10%	48%	63%	23%	20%	41.9%	31%
% Over 65 Years of Age	10%	7%	13%	21%	5%	5%	8%	16%	6.3%	13%
Total Number of Households	44,166	19,425	10,911	7,235	1,101	8,869	6,300	1,913	4,706	2,017
Mean Size of Household	1.5	1.67	1.40	1.3	3.48	3.69	1.66	1.86	3.84	3.17
Median School Years Completed	13.3	14.3	10.7	11.8	8.7	9.4	8.	9.3	8.5	10.2
% Owner Occupied of All Units	9%	7.7%	1%	.9%	9%	5.3%	2%	3.7%	16%	19%
% Renter Occupied of All Units	89%	79.2%	97%	80.3%	81%	79.7%	84%	83.3%	79%	75.4%
Mean Family Income (.000)	13.9	17.4	4.4	6.3(10)	4.4	5.74	2.1	2.0	5.5	8.8
% Families Below Poverty Line	10.4	4.6	28.8	12.8	32.5	32.6	43.6	37.3	11.7	21.9
% Above $10,000+	69%	83.7%	18.4%	56.8%	16.9%	21.3%	7.5%	21.3%	21.7%	53.9%
% Unemployed	2%	1.6%	6.7%	4.7%	7.4%	9.4%	17.2%	9.5%	7.8%	4.5%
Work-force As % of Total Pop.	66%	63%	64%	64%	33%	28%	45%	33%	37%	42%
% of Workers in CBD		25%		19%		6%		4%		16%
Transit Dependency[11]	58.6%	45%	53.7%	53.4%	55.7%	57.3%	68.8%	51.3%	39.8%	39.6%

DEMOGRAPHIC CHARACTERISTICS OF COMMUNITY AREAS

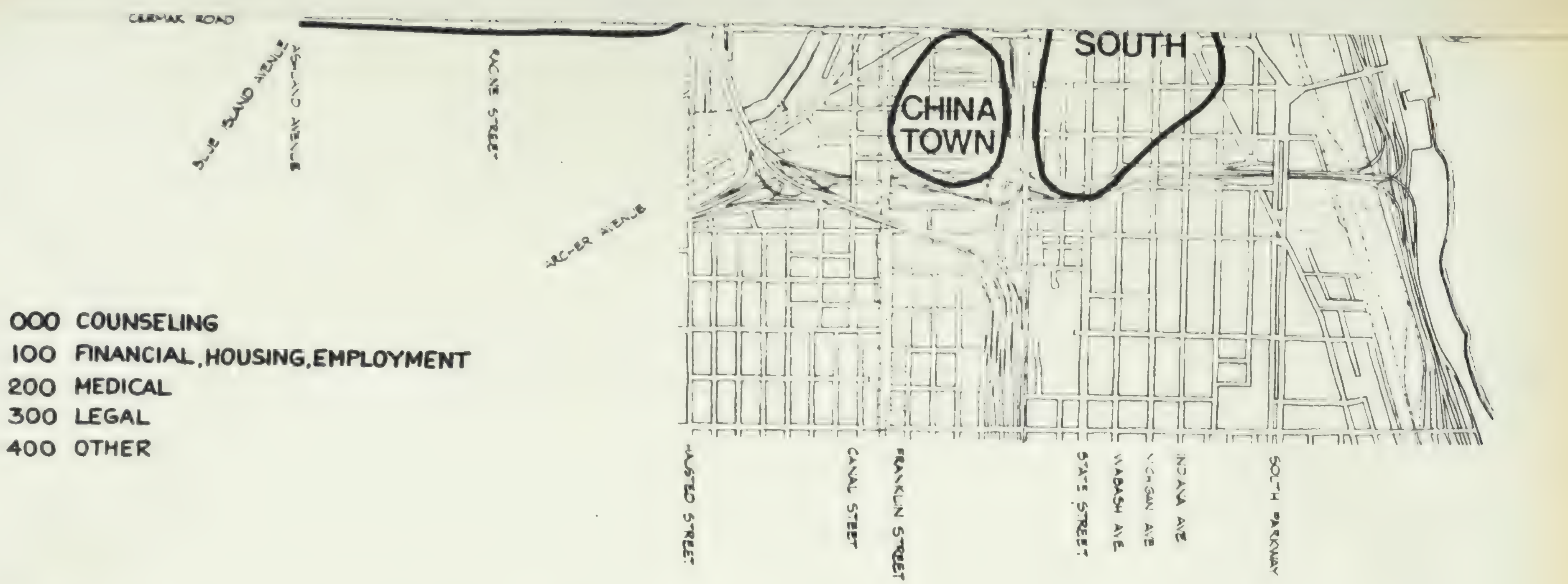
	South of Circle Campus[6]		Pilsen[7]		Chinatown[8]		Near South Side[9]		Westown[12]	
	60	70	60	70	60	70	60	70	60	70
Total Population	20,036	16,065	19,660	20,728	5,557	4,475	10,343	8,767	29,533	17,512
% of Major Ethnic Grouping	86.2% (Black)	94% (Black)	26.7% (Oriental)	76%	32.5% (Oriental)	75%	76.7 (Black)	94%	74% (White)	34% (Spanish)
% Under 19 Years of Age	54%	55%	39%	46%	39%	38%	46%	40%	34%	39%
% Over 65 Years of Age	6%	7%	9%	6%	10%	10%	23%	11%	6%	7%
Total Number of Households	5,148	4,465	6,154	4,879	1,610	1,251	3,353	2,924	5,905	5,304
Mean Size of Household	3.68	3.14	3.09	3.54	2.9	3.54	3.2	2.83	5.0	3.3
Median School Years Completed	6	7.7	8.3	7.9	7	8.6	8.1	9.9	8.34	9
% Owner Occupied of All Units	3%	3.2%	18%	27%	15%	18.8%	1.5%	.6%	4%	10%
% Renter Occupied of All Units	93%	90.6%	71%	65.8%	80%	75.9%	86%	89.5%	81%	90%
Mean Family Income ($000)	3.0	4.3	5.3	7.3	5.2	8.1	3.7	4.7	5.5	7.9
% Families Below Poverty Line	47	43.6	16.7	17.2	22.3	12.3	48.6	35.1	17	20
% Above $10,000+	5.8	11.4	20.8	32.6	22.4	43.0	8.7	16.9	7	34
% Unemployed	14.9	10.7	5.4	6.3	5.5	3.9	14	7	7	4
Work-force as % of Total Pop.	22	20	39	31	35	41	31	24	31	40
% of Workers in CBD		7		5		3		8		6
Transit Dependency[11]	42.3	71.6	47.4	58.1	54.5	54.9	66.8	69.8	39	53

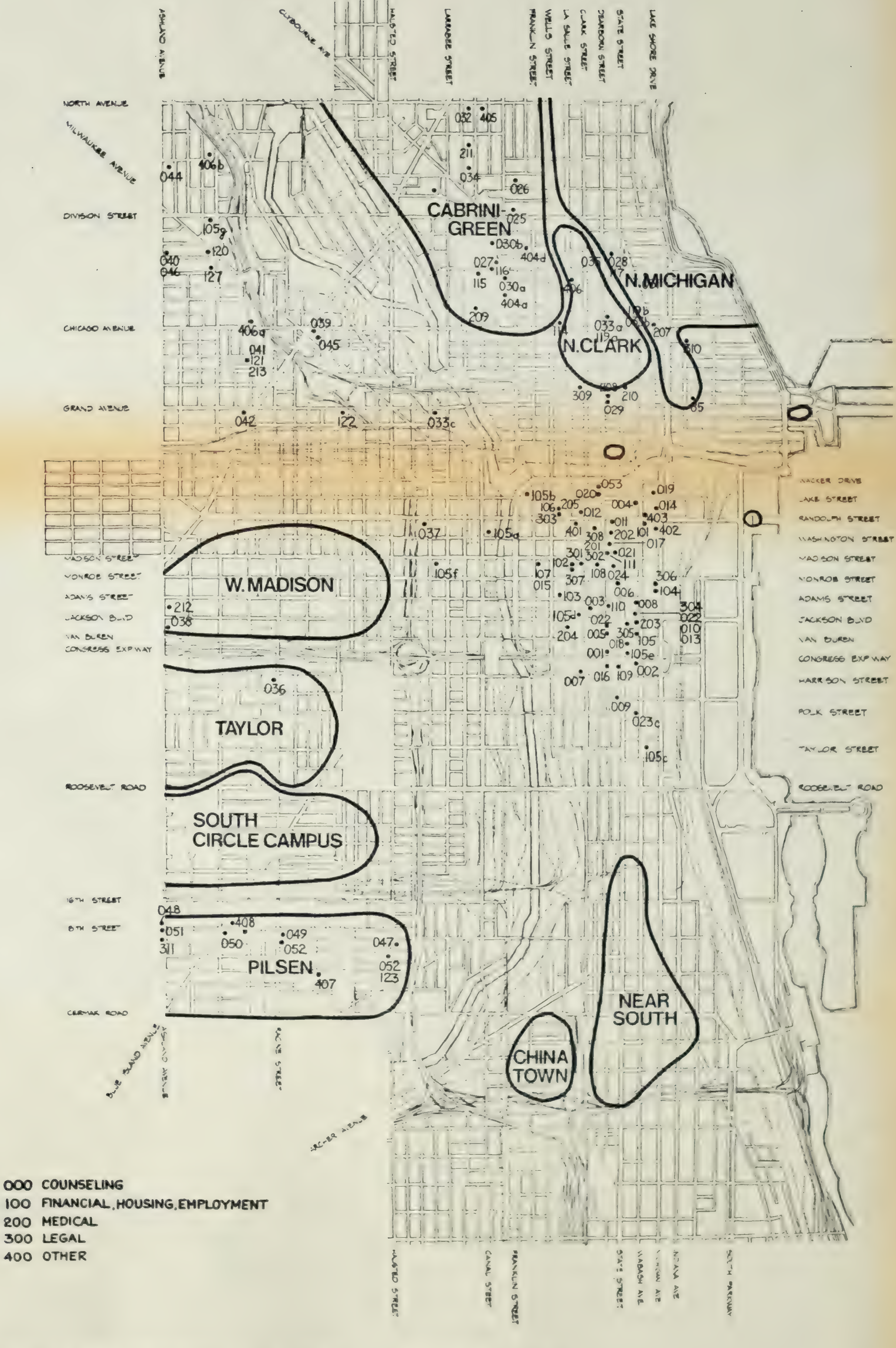
	Chicago	
	60	70
Total Population	3,550,404	3,363,825
% Under 19 Years of Age	33%	32%
% Over 65 Years of Age	9%	11%
Total Number of Housholds	1,157,409	1,137,854
Mean Size of Household	3.01	2.91
Median School Years Completed	10.0	11.2
% Owner Occupied of All Units	20%	33%
% Renter Occupied of All Units	64%	61%
Mean Family Income (.000)	6.7	10.2
% Families Below Poverty Line	14%	13%
% Above $10,000+	21%	51%
% Unemployed	5.6%	9%
Work-Force As % of Total Population	42%	41%
% of Workers in CBD	--	11%
Transit Dependency[11]	39%	37%

NOTES:

[1] Tracts 801,802,812-14, 3201
[2] Tracts 810,811,815-17
[3] Tracts 719,803-09,818,819
[4] Tracts 2801-03,2817-19
[5] Tracts 2822-24,2831,2833,2834
[6] Tracts 2832,2836-39
[7] Tracts 3101-3107
[8] Tracts 3401,3402
[9] Tracts 3301-05
[12] Tracts 2416-18,2433-36
[10] Excluding Census Tract 815 (Marina City)
[11] Number of Households Without Cars

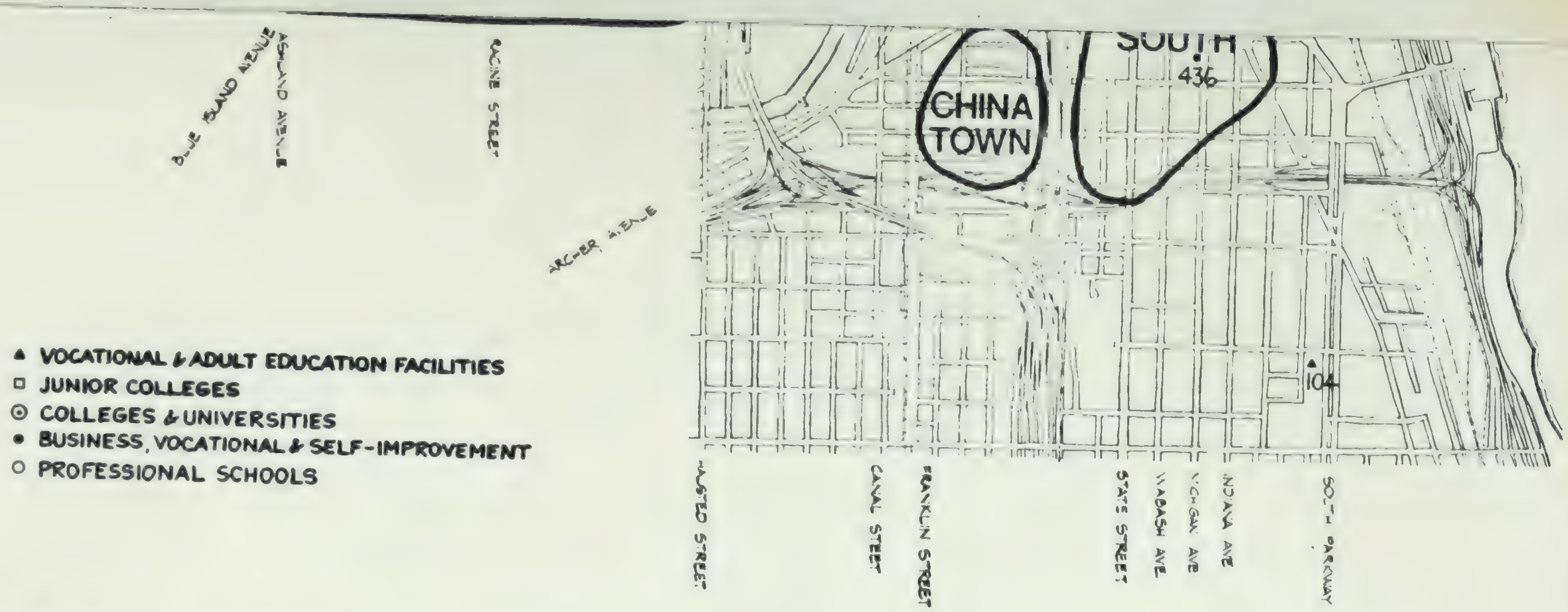
SOCIAL SERVICES: AGENCIES



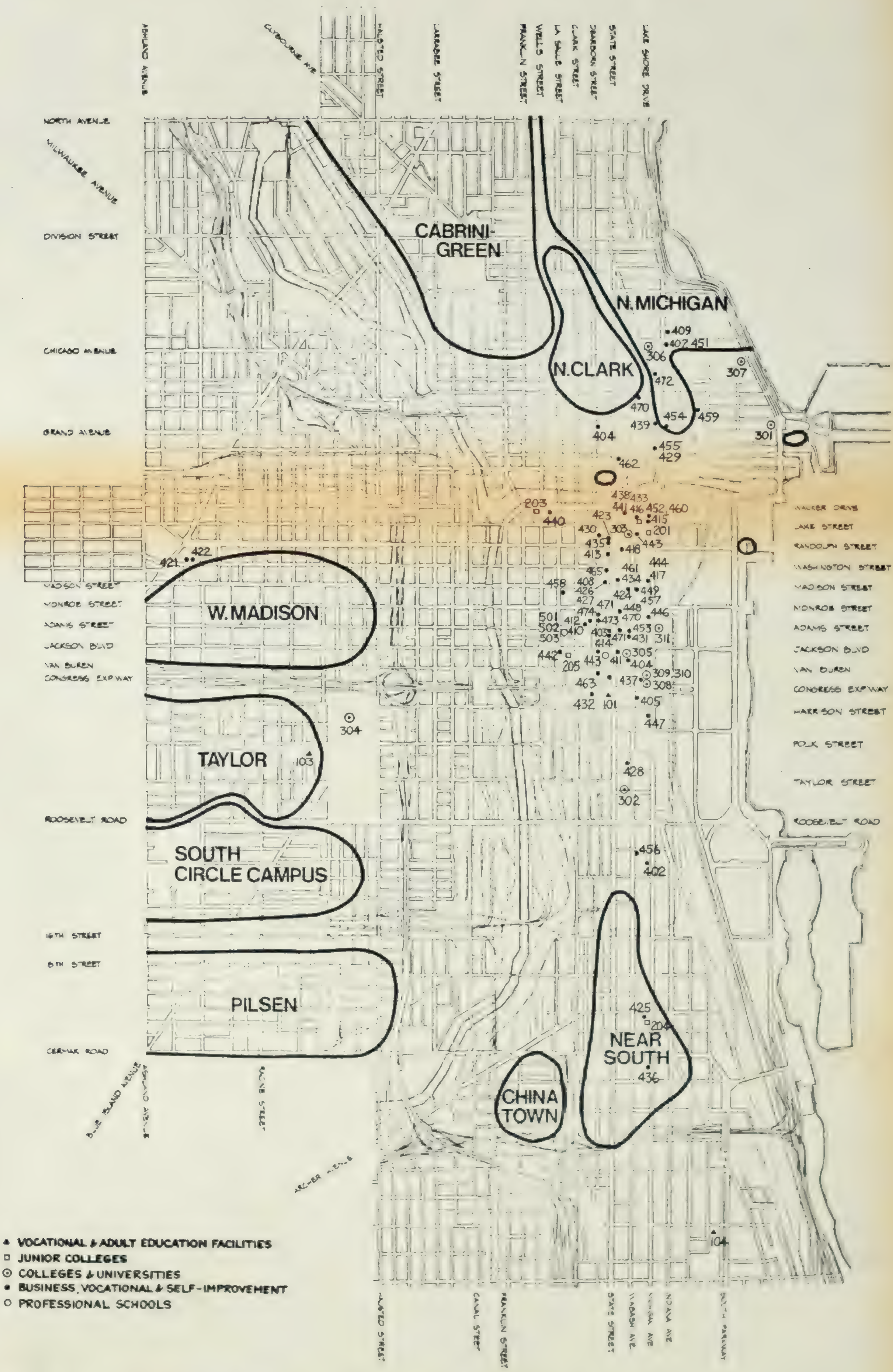


000 COUNSELING
100 FINANCIAL, HOUSING, EMPLOYMENT
200 MEDICAL
300 LEGAL
400 OTHER

SOCIAL SERVICES: AGENCIES

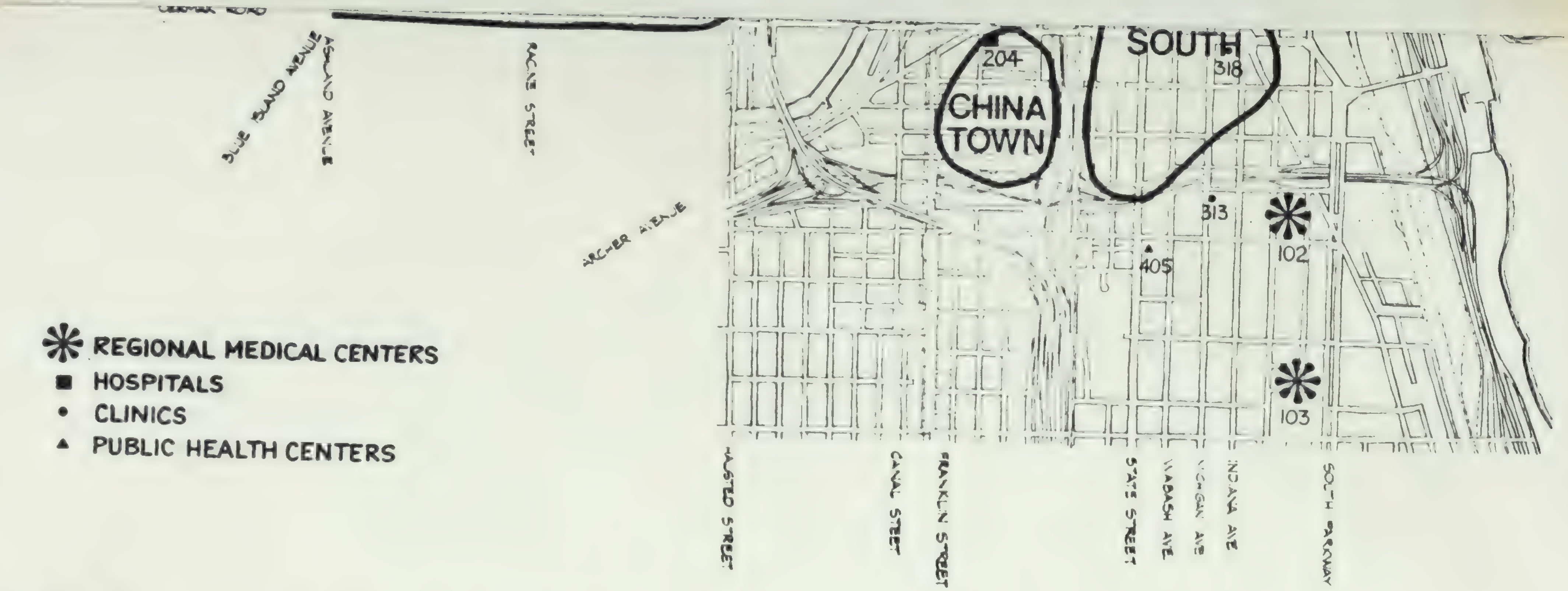


SOCIAL SERVICES: EDUCATION

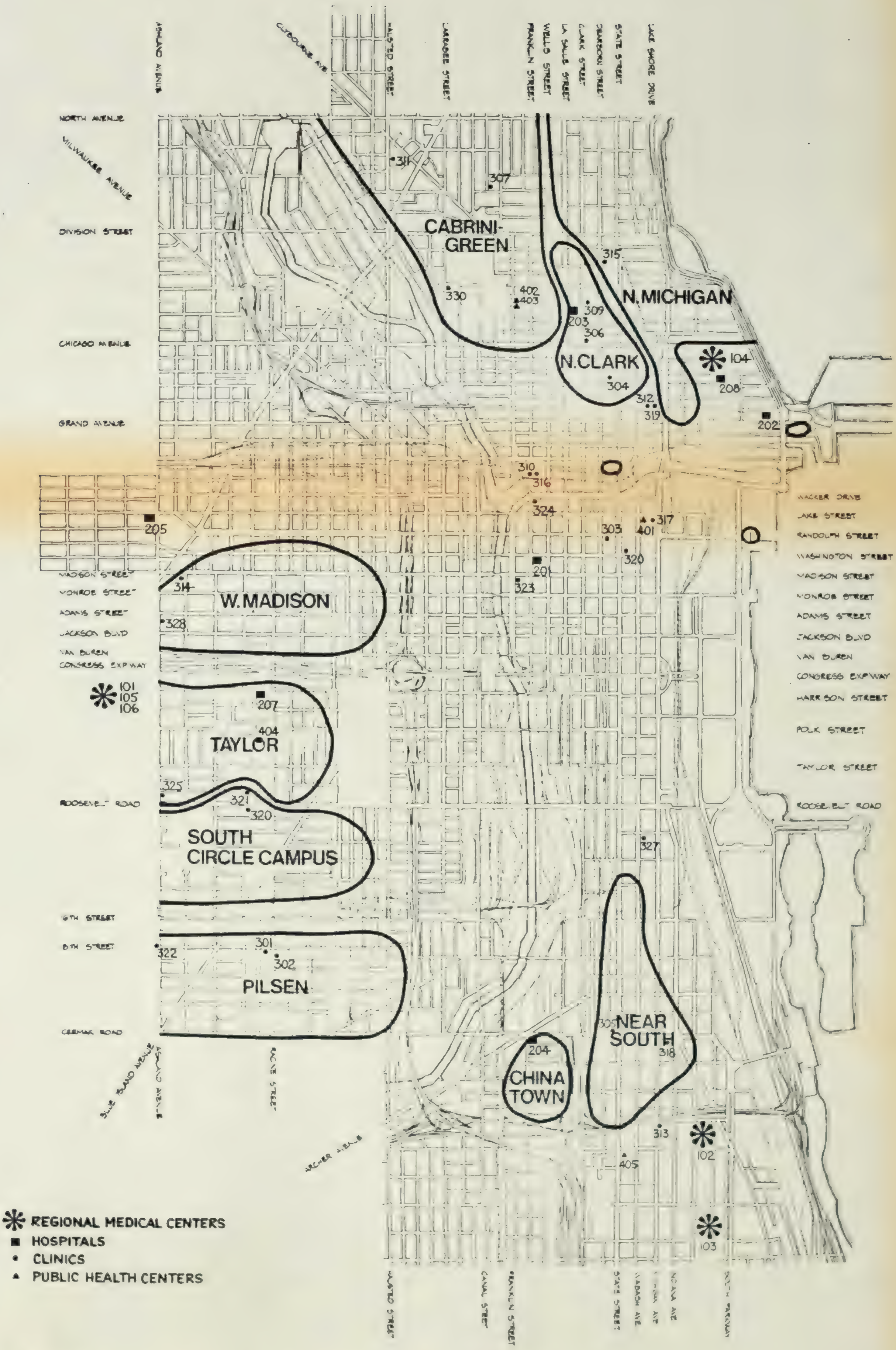


▲ VOCATIONAL & ADULT EDUCATION FACILITIES
□ JUNIOR COLLEGES
⊙ COLLEGES & UNIVERSITIES
● BUSINESS, VOCATIONAL & SELF-IMPROVEMENT
○ PROFESSIONAL SCHOOLS

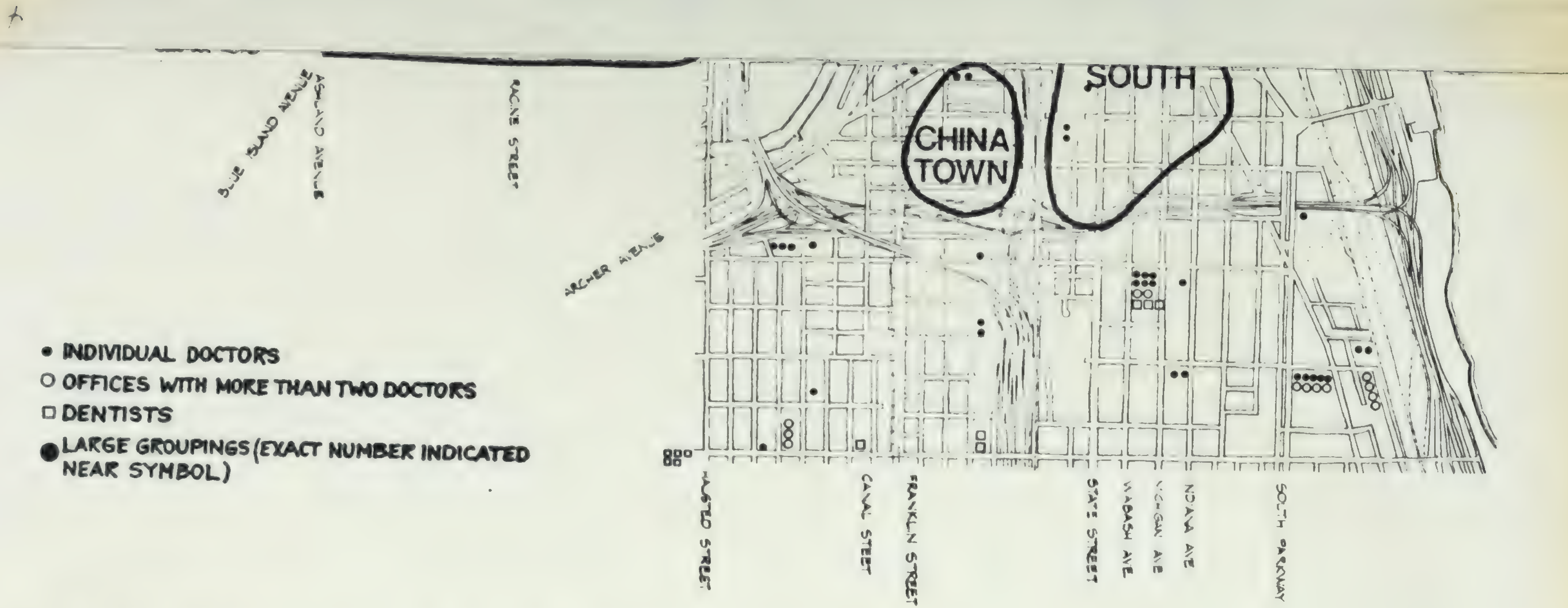
SOCIAL SERVICES: EDUCATION



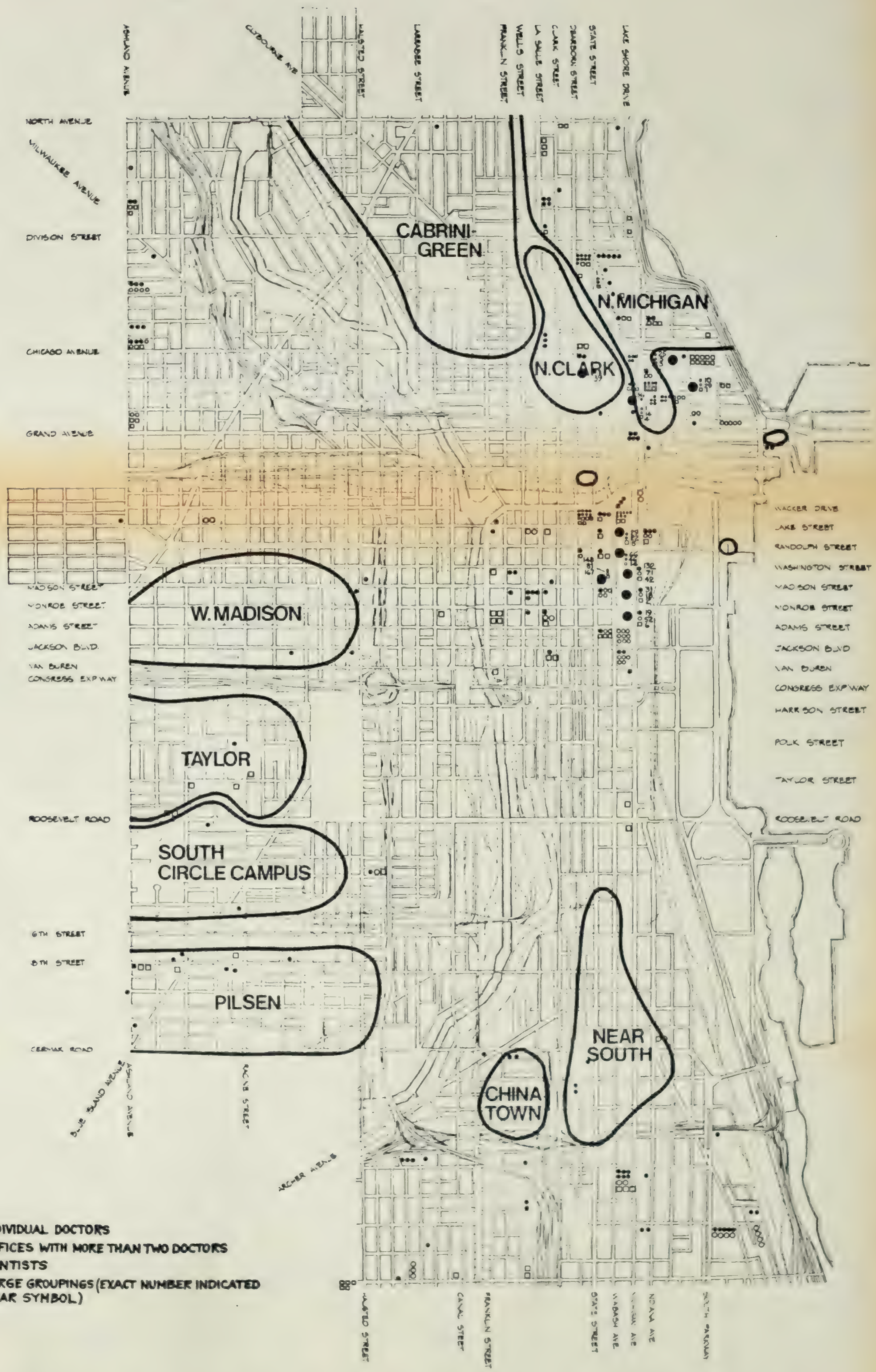
SOCIAL SERVICES: HEALTH



SOCIAL SERVICES: HEALTH



DOCTORS AND DENTISTS



DOCTORS AND DENTISTS

0 1000 2000

APPENDIX 2

PROCEDURE FOR PATRONAGE ESTIMATIONS

CENTRAL AREA PATRONAGE ESTIMATES

Patronage estimates for rapid transit service to the Loop and other central areas of Chicago were developed for the years 1975 and 1990. These estimates were developed for three different levels of improvement in rapid transit service within the Chicago Urban Transportation District: a low level illustrated by the do nothing alternative, a medium level corresponding to alternative 12, and a high level of improvement corresponding to the implementation of the proposed scheme or alternative 11. Each of these alternatives has been subjectively evaluated and a level of improvement rating (low, medium, or high) assigned. It should be noted that a more detailed analysis of these alternatives may result in slightly upgrading or downgrading assigned ratings: however, for the purpose of comparative evaluation of alternatives the present ratings should be considered.

Each of the three levels of transit improvement in the CUTD is expected to result in a corresponding level of activities and development. Those would include:

--Employment level and distribution
--Modal split characteristics
--Parking availability and cost
--General retail activities

It is expected that implementation of the do nothing alternative would result in the lowest rate of long-term development in the Central

Area* and that implementation of the proposed scheme would have the most favorable implications for central area development.

Since employment is the best measure of central area development, it has been used as the main yardstick in estimating rapid transit patronage.

A regional perspective has been adopted in estimating employment growth within the central area of Chicago. Table 2 shows past trends and future forecasts of population and employment. The population pattern of the Chicago Standard Consolidated Area (SCA) has paralleled the national rate growth during the past 25 years, although growth rates forecasted for the SCA are expected to decline during the next 20 years (also in conformance).

Growth is expected to take place regardless of the level of transit improvement in Chicago's Central Area. Employment in the SCA has followed population growth: this pattern is expected to continue over the next 20 years. Similar population and employment growth has taken place on a nationwide scale.

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*Individual central area developments have been committed in response to the announcement of the 1968 Transit Improvement Report. Alternative I would constitute a major disappointment to the financial community and would severely limit long-term central area growth and development. This point will be discussed in detail by the final report.

Chicago has experienced absolute as well as relative declines in employment population in the last 25 years. Such relative decline with respect to the Chicago SCA has been experienced in central area employment as evidenced from Table 3. The ratio of downtown employment to SCA employment has declined from 15.4% in 1950 to 10.2% during 1970. This decline is expected to continue in the future with the continuation of present transit service but can be expected to be reversed as the level of transit improvement in the Central Area increases over the "do nothing" case. Table 3 gives low, medium, and high level of employment estimates for both the Central Area and the loop area in a 1990 time frame. The basis for such estimates will be presented in detail in the final report. A list of forecast planning assumptions used to develop patronage estimates presented in this report follows:

> The region will continue to grow with the rest of the nation.
>
> The level of development in the loop area will correspond to the level of public transportation improvements.
>
> The ratio of loop and central area employment to that of the Chicago Standard Consolidated Area (SCA) will improve slightly with improvement of transit service.
>
> Residential development will take place within CTA present service area.
>
> CTA stations will undergo gradual modernization and improved accessibility.
>
> Public transit service to the loop and central area will be improved under RTA.

Fuel will be available, at relatively high cost, but rationing will not be permanent.

Auto traffic into CBD will continue and no user tax or severe restriction of off-street parking built in conjunction with high rise offices and hotels will occur.

Transit fares will be stabilized at current levels--meaning relative decline compared to competing modes, especially auto.

Published plans of office and commercial development in the central area will be realized.

Balanced development will occur along all corridors of CTA.

No major extensions of rapid transit lines will take place.

Retail development and community services will be strengthened in the loop area and coordinated with developments along the near north side.

A regional perspective has been adopted in estimating employment growth in Chicago's Central Area, and total accessibility approach has been adopted in estimating rapid transit ridership (i.e. all modes of transport serving the Central Area have been analyzed in order to arrive at the rapid transit share of the total market). Existing modal split characteristics were modified to reflect the influences of the transit improvement in Chicago's Central Area diverting more people to public transportation modes, both during peak and off-peak hours. Table 4 presents such characteristics for all public transit modes combined (i.e. rapid transit, bus, suburban bus, and commuter

railroad) vs. private automobile transportation for the low, medium and high levels of transit improvement. All public transit shares were broken down by mode of travel and 1990 ridership levels were estimated for each mode and by each level of transit improvement. Tables 5, 6, 7 & 8 give preliminary estimates for CTA rapid transit suburban railroads and other modes.

It can be seen from these estimates that 1990 CTA rapid transit ridership to the central area for the high level of transit improvement is expected to increase by 70% over 1972 and by almost 50% over the do nothing alternative by 1990. Loop area rapid transit ridership is expected to increase by 56% over that of 1972 and about 44% over the do nothing situation in 1990. Suburban railroad ridership is expected to experience patterns of growth similar to those of the CTA.

In general, transit improvements similar to those proposed in alternatives 11, 12 and the proposed scheme are expected to favorably impact CTA operations due to:

1. increase in the ratio of off-peak to peak period patronage due to increased level of retail activities in downtown;
2. increase in weekend ridership through provision of transit services to such special generators of traffic as Soldier's Field and McCormick Place;
3. elimination or modification of some of the marginal buslines serving the central area.

TABLE 1

LEVEL OF IMPROVEMENT RATINGS OF ALTERNATIVES

Alternative	Description	Level of Improvement
1	"Do Nothing"	Low
2	Upgrade existing elevated structure	Low
3	Eliminate loop, build east-west distributor	Low
4	Eliminate loop, build east-west distributor and north-south route	Low
5	Replace existing loop with new elevated structure	Medium
6	Replace loop with proposed subway loop and distributor	High
7	Replace loop with Wacker Drive/Grant Park subway and Distributor	Medium
8	Replace loop with modification of proposed subway loop and distributor	High
9	Replace loop with north-south subway leg west of river	Medium
10	Replace loop with subway and eliminate distributor	Medium
11	Replace loop with subway combined with distributor on Michigan Avenue	High
12	Replace loop with new elevated structure and east-west distributor with subway added on Clinton	Medium

TABLE 2

POPULATION & EMPLOYMENT TRENDS AND FORECASTS

CHICAGO AREA

IN THOUSANDS

	1950	1960	1970	1975	1990
SCA Population	5,580	6,795	7,608	(1) 8,024	(1) 8,970
SCA Employment	2,525	2,935	3,425	(2) 3,670	(2) 4,214
% of Population	45.3	43.2	45.0	45.7	47.0
City of Chicago pop.	3,621	3,550	3,367	(3) 3,438	(3) 3,600
% of SCA pop.	64.9	52.2	44.3	42.8	40.1
City of Chicago Employment	1,799	1,671	1,737	N.E.	N.E.
% of SCA empl.	71.2	56.9	50.7	---	---

---

(1) ITRP Preliminary Estimate
(2) NIPC Estimate
(3) CATS Approximate Estimate
N.E. No Estimate

TABLE 3

EMPLOYMENT TRENDS & FORECASTS

CUTD DISTRICT

IN THOUSANDS

A. Central Area	50	60	70	75	90		
					High	Med.	Low
		(1)	(2)	(3)	(3)	(3)	(3)
Employment	N.E.	547	574	617	754	723	680
% to SCA empl.		18.2	16.8	16.8	17.9	17.2	16.1

B. Loop Area

	(4)	(4)	(2)	(3)	(3)	(3)	(3)
Employment	389	338	350	374	473	452	420
% to SCA empl.	15.4	11.5	10.2	10.2	11.2	10.7	10.0

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(1) RERC Approximate Estimate for 1965
(2) CATS Approximate Estimate
(3) ITRP Preliminary Estimate
(4) Cordon Count Derived Estimate

TABLE 4

ESTIMATED MODAL SPLIT CHARACTERISTICS

A. Central Area	All Public Transit			Auto		
	peak	off-peak	total	peak	off-peak	total
1972	67.1%	31.4%	53.5%	32.9%	68.6%	46.5%
1975	67.1%	31.4%	53.5%	32.9%	68.6%	46.5%
1990						
High	74.6%	46.1%	63.6%	25.4%	53.9%	36.4%
Med.	71.1%	38.5%	58.6%	28.9%	61.5%	41.4%
Low	66.7%	29.7%	52.9%	33.3%	70.3%	47.1%
B. Loop Area						
1972	81.0%	40.0%	64.4%	19.0%	60.0%	35.6%
1975	80.9%	40.0%	64.4%	19.1%	60.0%	35.6%
1990						
High	87.6%	50.0%	72.5%	12.4%	50.0%	27.5%
Med.	86.3%	42.3%	68.6%	13.7%	57.7%	31.4%
Low	80.1%	36.8%	63.4%	19.9%	63.2%	36.6%

TABLE 5

CENTRAL AREA PERSON TRIPS BY MODE

	Year	Public Transportation						
		Rapid Transit	Rail	CTA Bus.	Sub. Bus	Subtotal	Auto	Total
Total	1972	190,000	114,000	83,000	19,000	406,000	352,000	758,000
Peak	(actual)	178,000	106,000	61,000	19,000	314,000	153,000	467,000
Off-Peak		62,000	8,000	22,000	0	92,000	199,000	291,000
Total	1990	320,000	180,000	105,000	25,000	630,000	360,000	990,000
Peak	High	200,000	155,000	75,000	25,000	455,000	155,000	610,000
Off-Peak		120,000	25,000	30,000	0	175,000	205,000	380,000
Total	1990	270,000	162,000	100,000	24,000	556,000	393,000	949,000
Peak	Medium	180,000	142,000	70,000	24,000	416,000	169,000	585,000
Off-Peak		90,000	20,000	30,000	0	140,000	224,000	364,000
Total	1990	215,000	132,000	98,000	26,000	471,000	419,000	890,000
Peak	Low	155,000	123,000	68,000	26,000	372,000	185,000	557,000
Off-Peak		60,000	9,000	30,000	0	90,000	234,000	333,000

TABLE 6

CENTRAL AREA MODAL SPLIT (Percent)

		Public Transportation					
	Year	Rapid Transit	Rail	CTA Bus	Sub. Bus	Subtotal	Auto
Total	1972	25.0	15.0	11.0	2.5	53.5	46.5
Peak	(actual)	27.4	22.7	13.1	4.1	67.2	32.8
Off-Peak		71.3	2.7	7.6	0	31.6	68.4
Total	1990	32.3	18.2	10.6	2.5	63.6	36.4
Peak	High	32.8	25.4	12.3	4.1	74.6	25.4
Off-Peak		31.6	6.6	7.9	0.0	46.1	53.9
Total	1990	28.5	17.1	10.5	7.5	58.6	41.4
Peak	Medium	30.8	24.3	11.9	4.1	71.1	28.9
Off-Peak		24.7	5.6	8.2	0.0	38.5	61.5
Total	1990	24.2	14.8	11.0	2.9	52.9	47.1
Peak	Low	27.8	22.0	12.2	4.7	66.7	33.6
Off-Peak		18.0	2.7	9.0	0.0	29.7	70.3

TABLE 7

LOOP AREA TRIPS BY MODE

	Year	Public Transportation Rapid Transit	 Rail	 CTA Bus	 Sub. Bus	 Subtotal	Auto	Total
Total	1972	147,000	93,000	59,000	17,000	316,000	175,000	491,000
Peak	(Actual)	91,000	87,000	40,000	17,000	235,000	57,000	292,000
Off-Peak		56,000	6,000	19,000	0	71,000	128,000	199,000
Total	1990	230,000	140,000	76,000	20,000	456,000	177,000	643,000
Peak	High	140,000	125,000	51,000	20,000	336,000	47,000	383,000
Off-Peak		90,000	15,000	25,000	0	130,000	130,000	260,000
Total	1990	200,000	125,000	76,000	20,000	421,000	193,000	614,000
Peak	Medium	133,000	112,000	51,000	20,000	316,000	50,000	366,000
Off-Peak		67,000	13,000	25,000	0	105,000	143,000	248,000
Total	1990	160,000	112,000	70,000	20,000	312,000	209,000	571,000
Peak	Low	107,000	105,000	49,000	20,000	281,000	70,000	351,000
Off-Peak		53,000	7,000	21,000	0	281,000	139,000	220,000

TABLE 8

LOOP AREA MODAL SPLIT (Per cent)

	Year	Public Transportation Rapid Transit	Rail	CTA Bus	Sub. Bus	Subtotal	Auto
Total	1972	29.9	19.0	12.0	3.5	64.4	35.6
Peak	(Actual)	31.2	29.8	13.7	5.8	80.5	19.5
Off-Peak		21.3	2.7	7.6	0	31.6	68.4
Total	1990	35.8	21.8	11.8	3.1	72.5	27.5
Peak	High	36.6	32.5	13.3	5.2	87.6	12.4
Off-Peak		34.6	5.8	9.6	0.0	50.0	50.0
Total	1990	32.6	20.4	12.4	3.2	68.6	31.4
Peak	Medium	36.3	30.6	13.9	5.5	86.3	13.7
Off-Peak		27.0	5.2	10.1	0.0	42.3	57.7
Total	1990	28.0	19.6	12.3	3.5	63.4	36.6
Peak	Low	30.5	29.9	14.0	5.7	80.1	19.9
Off-Peak		24.1	3.2	9.5	0.0	36.8	63.2

DISTRIBUTOR PATRONAGE ESTIMATES

Distributor traffic estimates were developed from four component parts, each generally independent of each other. Most of the estimating was done initially for the shuttle fare. In some cases, the fare would have very little effect on ridership, while in others it would affect ridership considerably. In general, it was estimated that a maximum of 10% would be deterred by the extra 10 cents required by a full fare. Under a free fare, a maximum of around 25% increase was considered over the shuttle fare estimates of ridership. Each instance was considered, individually, taking into account the alternatives and other pertinent data. The four components are railroad station traffic, rapid transit transfer traffic, bus transfer traffic, and miscellaneous traffic.

Railroad Station Traffic

To provide a fairly detailed estimate of traffic from the rail stations, the commuters destined to each CATS zone* were apportioned among the three railroad stations. The assumption is made that the LaSalle Street Station will be closed and the Rock Island trains transferred to Union Station. The apportionment was made on the basis of projec-

tions of Suburban rail traffic for 1975 by line.* From these projections, the traffic was divided up so that both Union and Northwestern Stations would get approximately 35% of the traffic and slightly less than 30% would use the various Illinois Central Stations. For each zone, these percentages were altered, since persons working near a rail station would be more likely to use it than a station that was quite far away.

The traffic that would use the distributor was estimated from the persons destined to each zone. This was done by examining the location of the station and the destinations. Their proximity was considered as affecting how many persons would walk. Alternative bus routes were considered as to their frequency and speed. The walking necessary to reach the distributor from the stations was worked in. All of these factors and others were combined to produce the traffic estimates for the distributor at the shuttle fare. Keeping the general guidelines above, these factors were reweighed in obtaining full fare and free fare estimates.

The estimate could be taken as some sort of median value. It is clear that in the A.M. rush fewer persons would rely on it than in the P.M. rush, according to present Northwest Passage experience. On inclement days more persons than normal will ride rather than walk. The patronage will fluctuate due to these factors and others.

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* Source: Transit Planning Study, Chicago Central Area Vol. III

Rapid Transit Transfer Traffic

Transfers from the rapid transit were estimated in a way similar to the rail station traffic. The percentages of the total traffic entering downtown by each route were derived. The traffic for each zone was split among routes by using the percentages, altering them according to their proximity to the zone. The number of persons likely to take the distributor between the zone and the nearest station was estimated, taking into account walking, alternative bus or rapid transit routes and other factors. In cases where the person had a choice, as between the North-South and the Ravenswood at Fullerton, it was assumed that most would take the one which brings them closest to their destination.

The estimates do not vary for the various fares. It is assumed the current policy of free transfer between rapid transit lines will continue. Thus, a full fare (45¢) will be necessary for a joint ride in any circumstance.

Bus Transfer Traffic

While it is likely that considerable changes will take place in loop routes of buses, the exact changes are not known at this time. Traffic on each route was analyzed under the present circumstances. Estimates of how many persons might transfer from each route were made. The

criteria included the routing of the bus in the Loop, the relevance of the distributor in reaching important traffic generators, the alternatives available in the pickup area, and the similarity of distribution areas of the distributor and bus line. The traffic should be the same under a shuttle fare or full fare, with a slight increase in the case of free fare.

Miscellaneous Traffic

University of Illinois -- Chicago Circle Traffic:

Estimated Students	22,650	(1975-6, U of I estimate)
Estimated faculty-staff	3,000	
	25,650	(destined for campus)
	x .80	(all do not attend daily)
	20,500	
	x .37	(% using R.T., 1971 estimate)
	7,600	
	x .40	(% estimated to use Distributor)
Traffic using Distributor from other CTA lines	3,050	

Estimates of suburban rail traffic:

	Free	Shuttle	Full
North Western	350	250	200
Union	450	300	250
IC -- SS	250	200	150
Traffic using Distributor from railroad stations	1,050	750	600
CTA traffic, for any fare	3,050	3,050	3,050
Total U of I -- CC Traffic	4,100	3,800	3,650

Other Miscellaneous Traffic

Estimates for the miscellaneous traffic were adapted from previous R/P estimates in 1971. Each had to be expanded for full or free fare and a Halsted estimate was added.

Station	Free	Shuttle	Full
Morgan	1,000	900	850
Halsted	400	300	300
Clinton	1,600	1,200	1,000
Monroe Stations	4,650	3,600	3,200
Randolph	1,300	1,000	900
North Loop	2,850	2,300	2,100
	11,800	9,300	8,350

All miscellaneous traffic is total in nature, not half of a round trip, since the traffic is somewhat random. The rail, rapid transit and bus transfers are estimates for going to destinations and are doubled to include the return trip.

McCormick Leg

Estimates for the McCormick Place leg of the distributor are much more dependent upon specific events. To make these estimates, a review of attendance at McCormick Place events and Soldier Field events must be made. Therefore patronage for special events is not included in the basic distributor patronage estimates.

It is anticipated that traffic on the distributor will increase substantially when there is cold, snowy, or rainy weather, based on current usage

of the Northwest Passage and CTA shuttle buses. These increases are expected to be up to 20% for railroad-related trips, and up to 10% for rapid transit, and bus-related trips. Other categories of traffic would remain the same, or perhaps even decline somewhat, since the weather would discourage people from making trips which are to any extent optional.

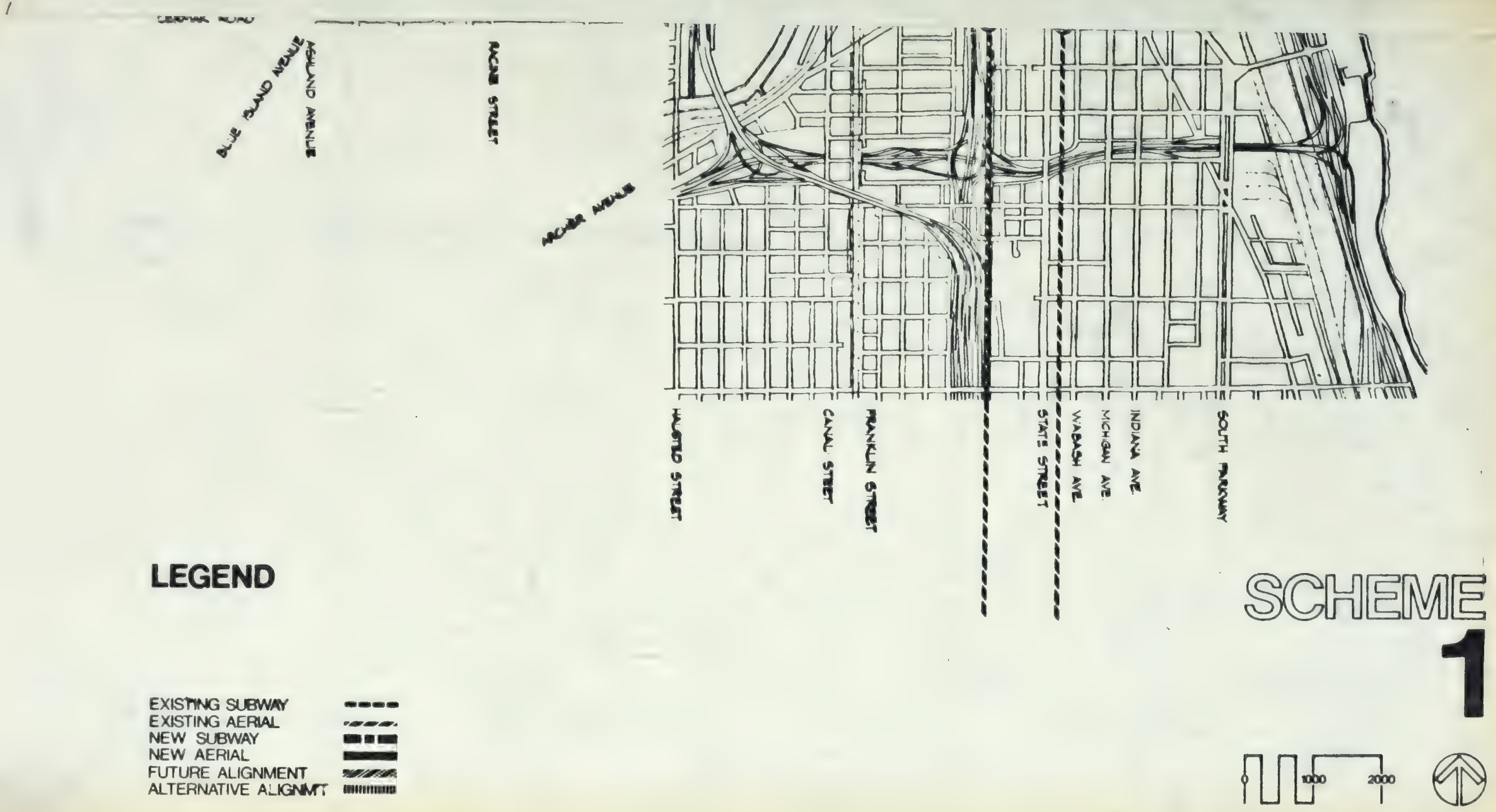
Category of Riders	Normal Conditions	Adverse Weather Conditions*
To and from railroad	49,800	59,200
To and from rapid transit	29,800	32,800
To and from bus	28,400	30,400
To and from U of I -- CC	7,600	7,600
McCormick Branch	6,000	6,000
Miscellaneous	9,400	9,400
Total	131,000	146,000

* assumes entire day of bad weather

APPENDIX 3

ALTERNATIVE ROUTE PLANS

SCHEME 1



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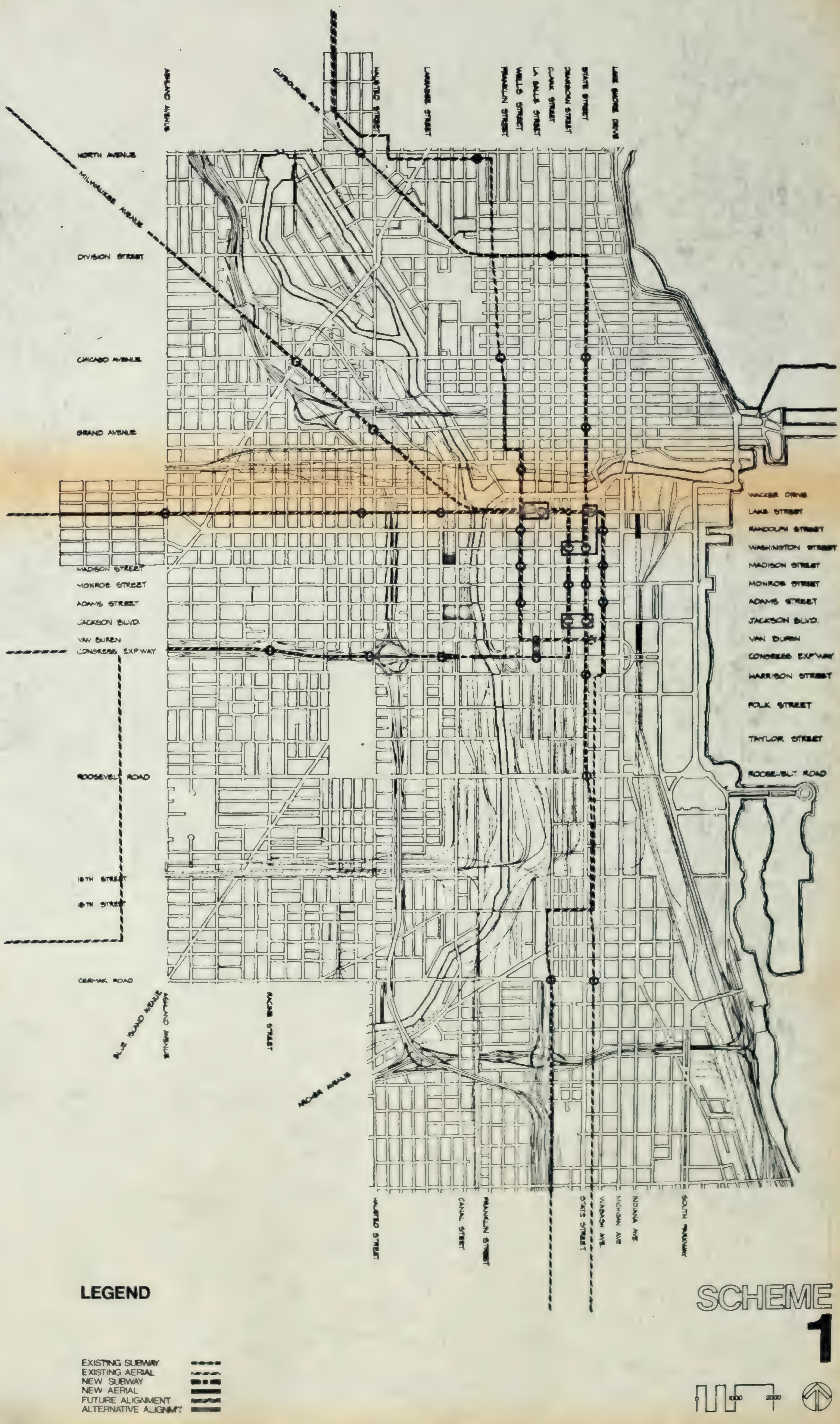

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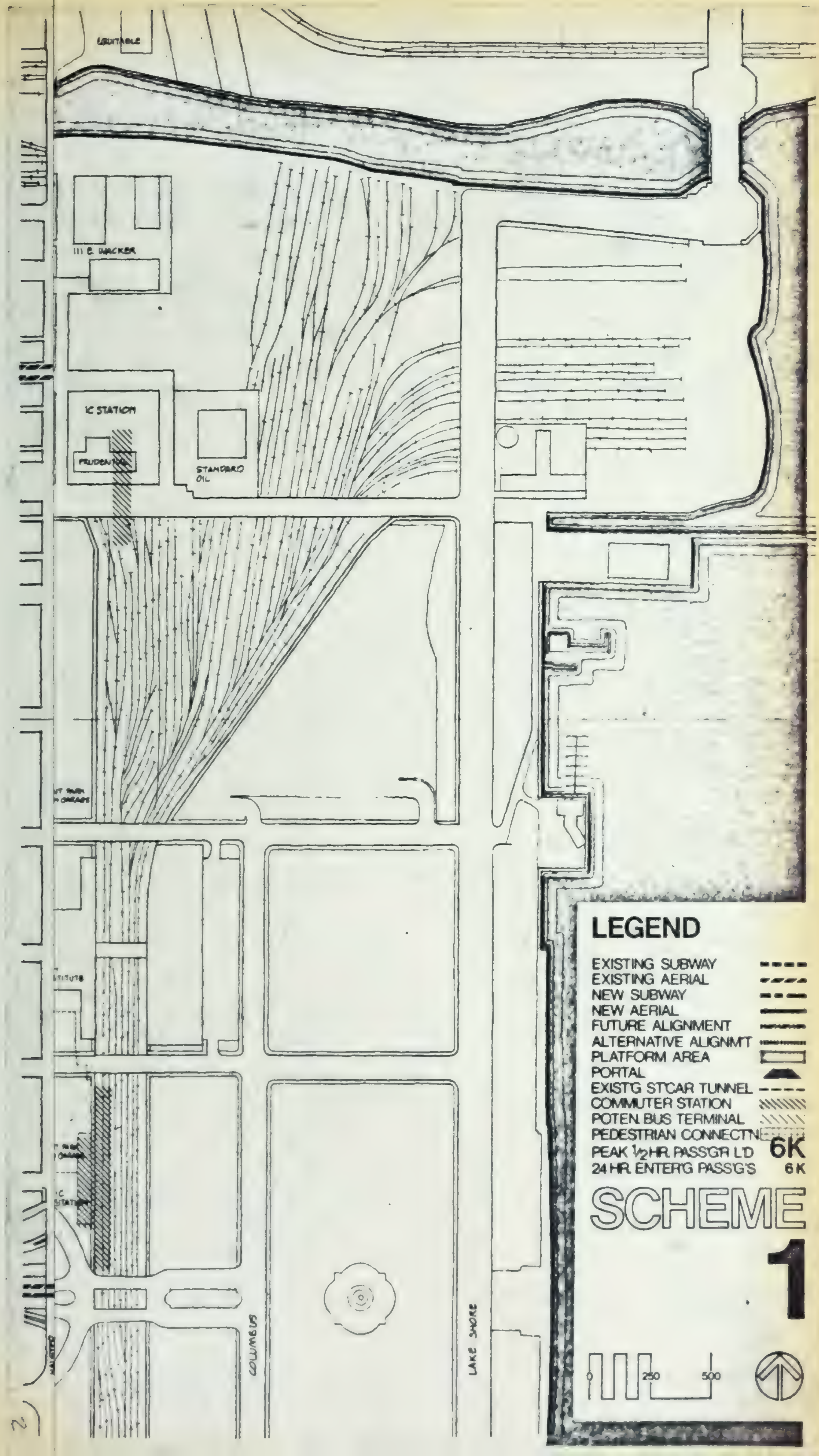
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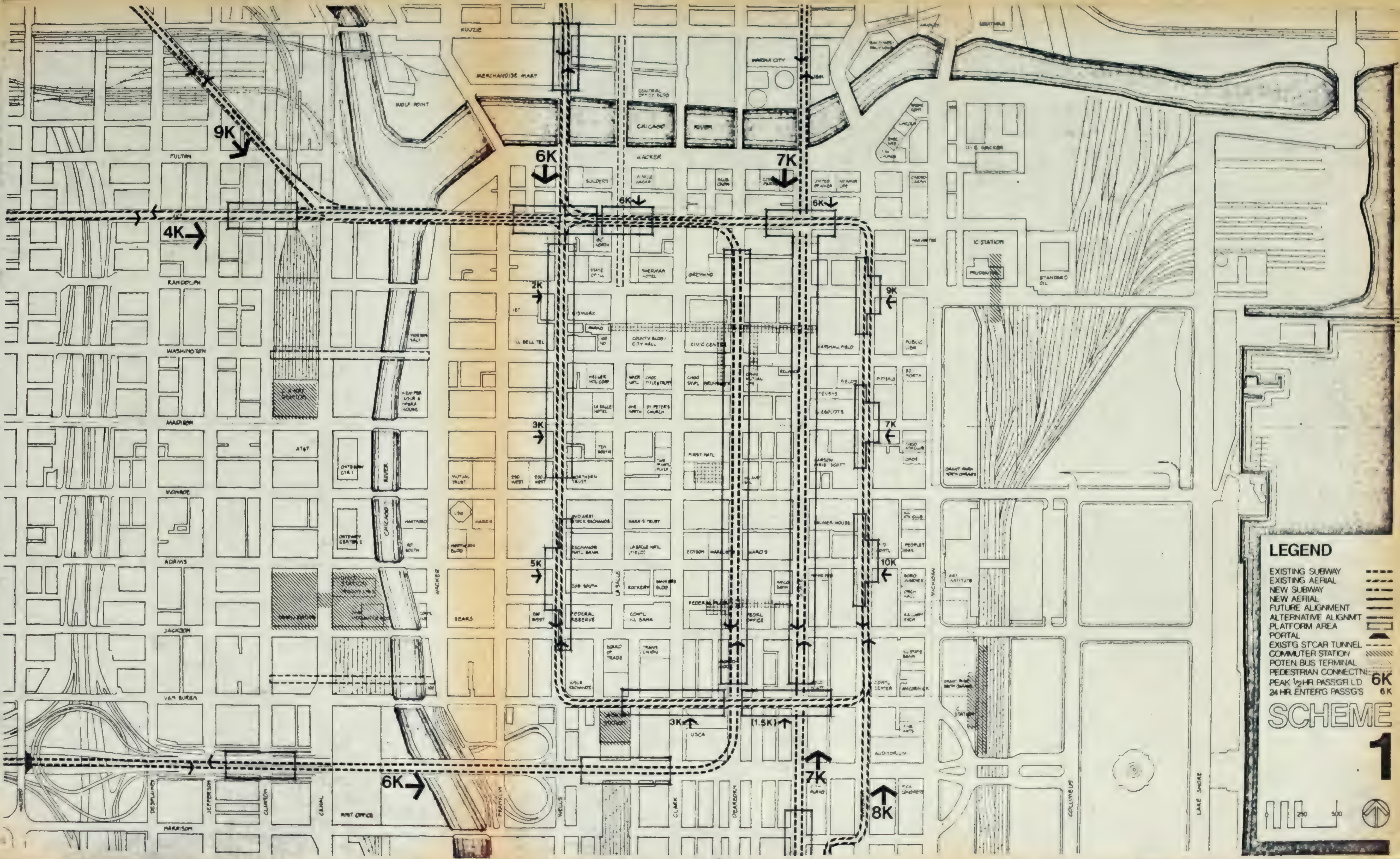
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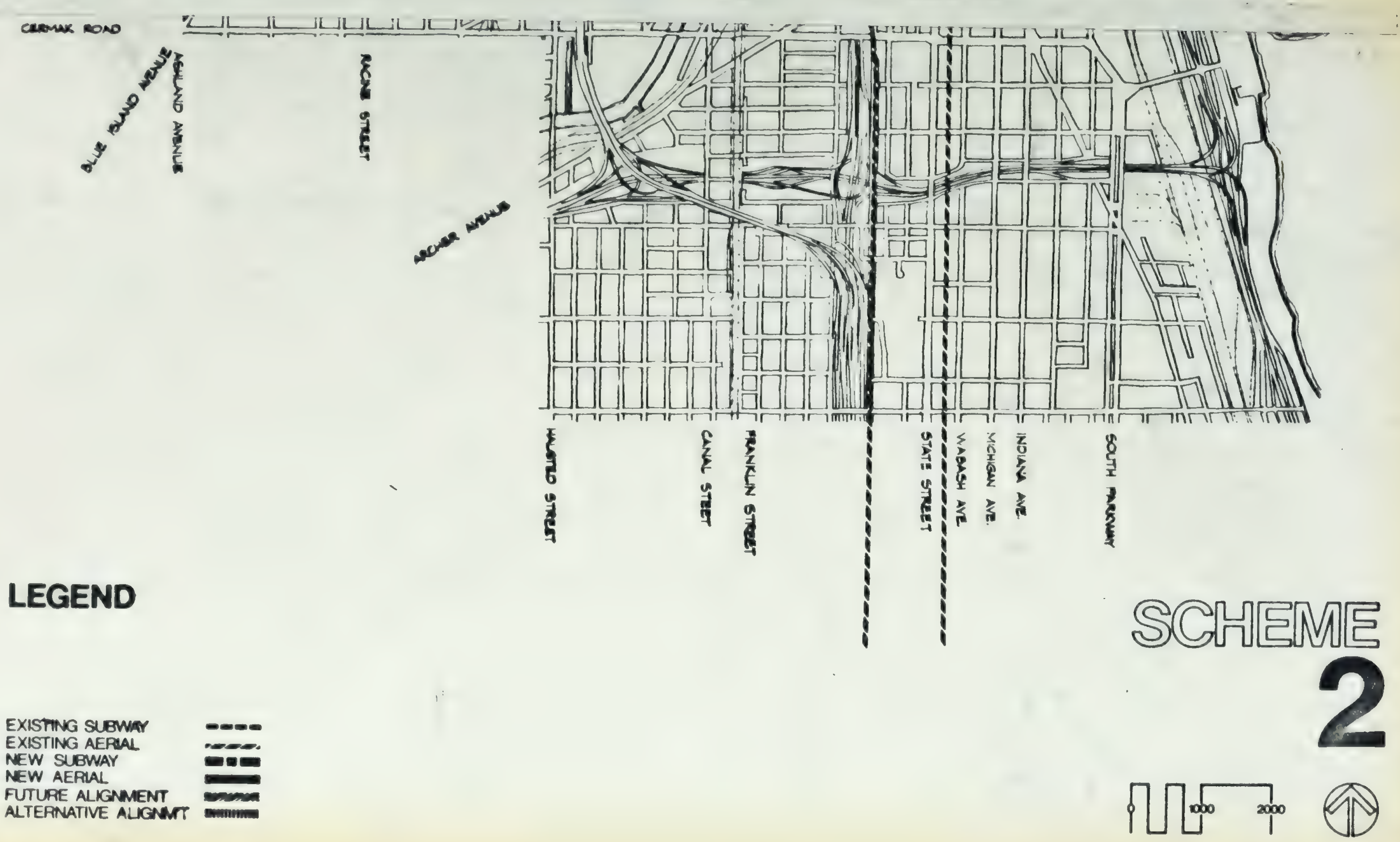
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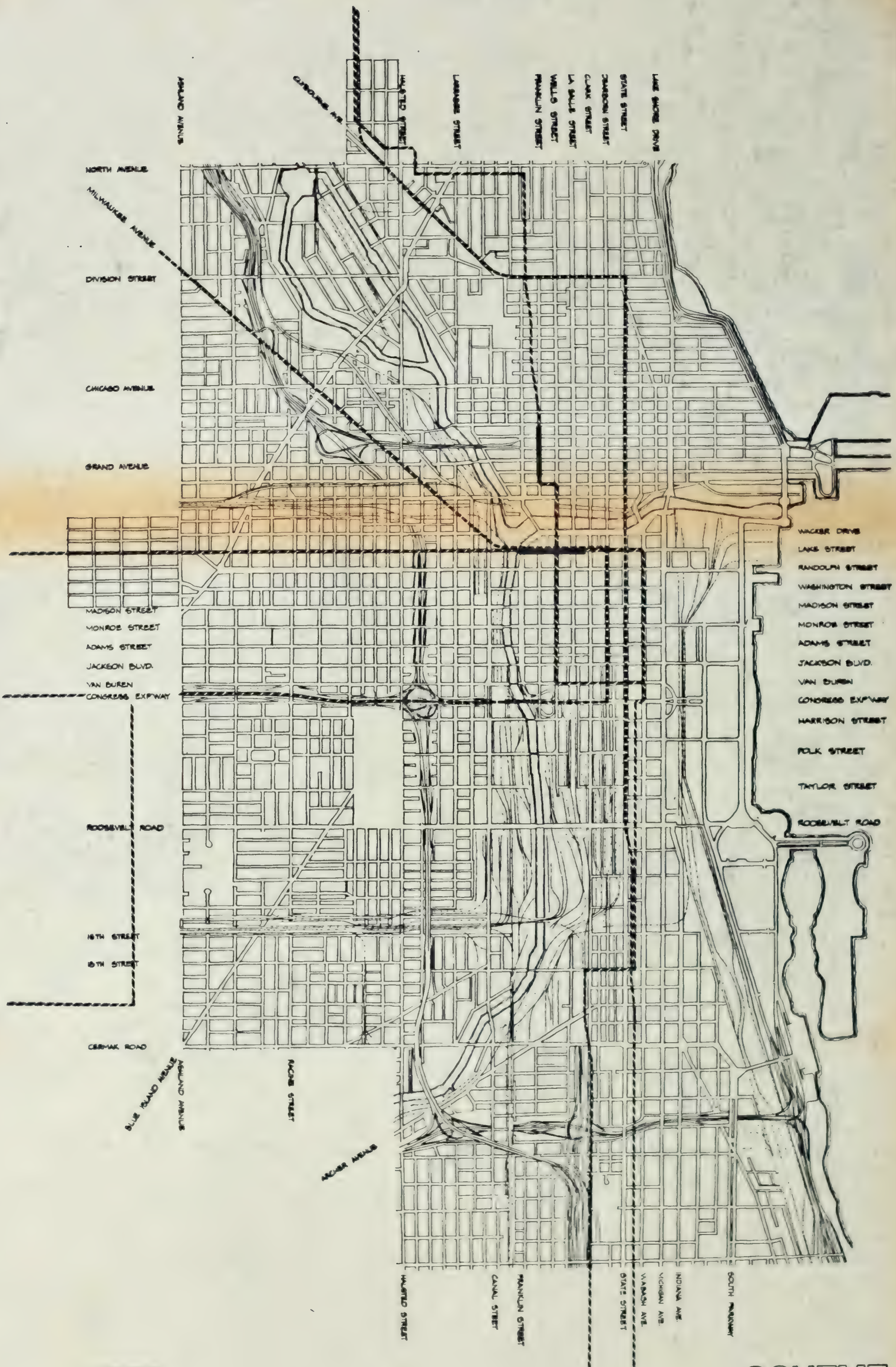

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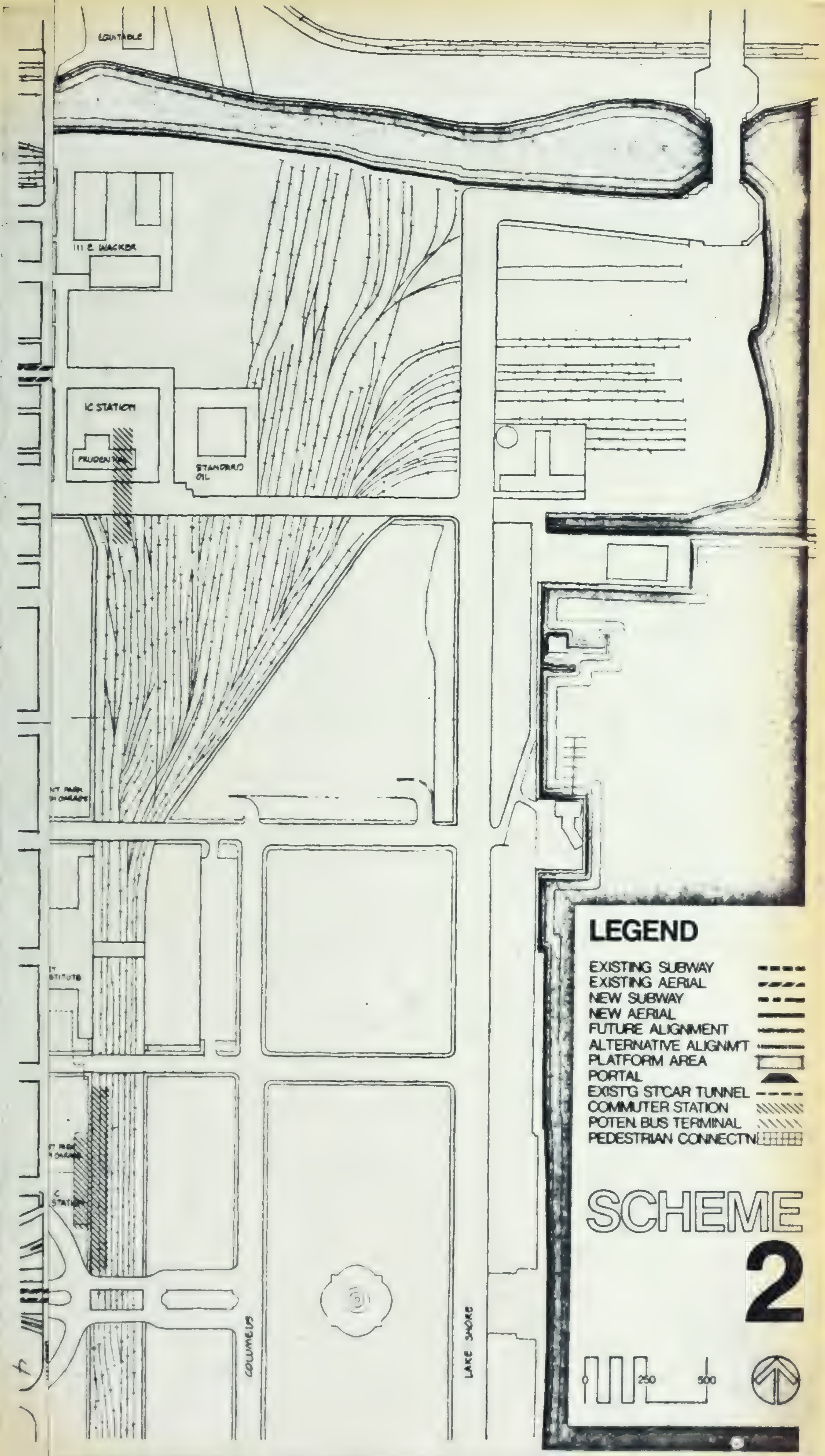
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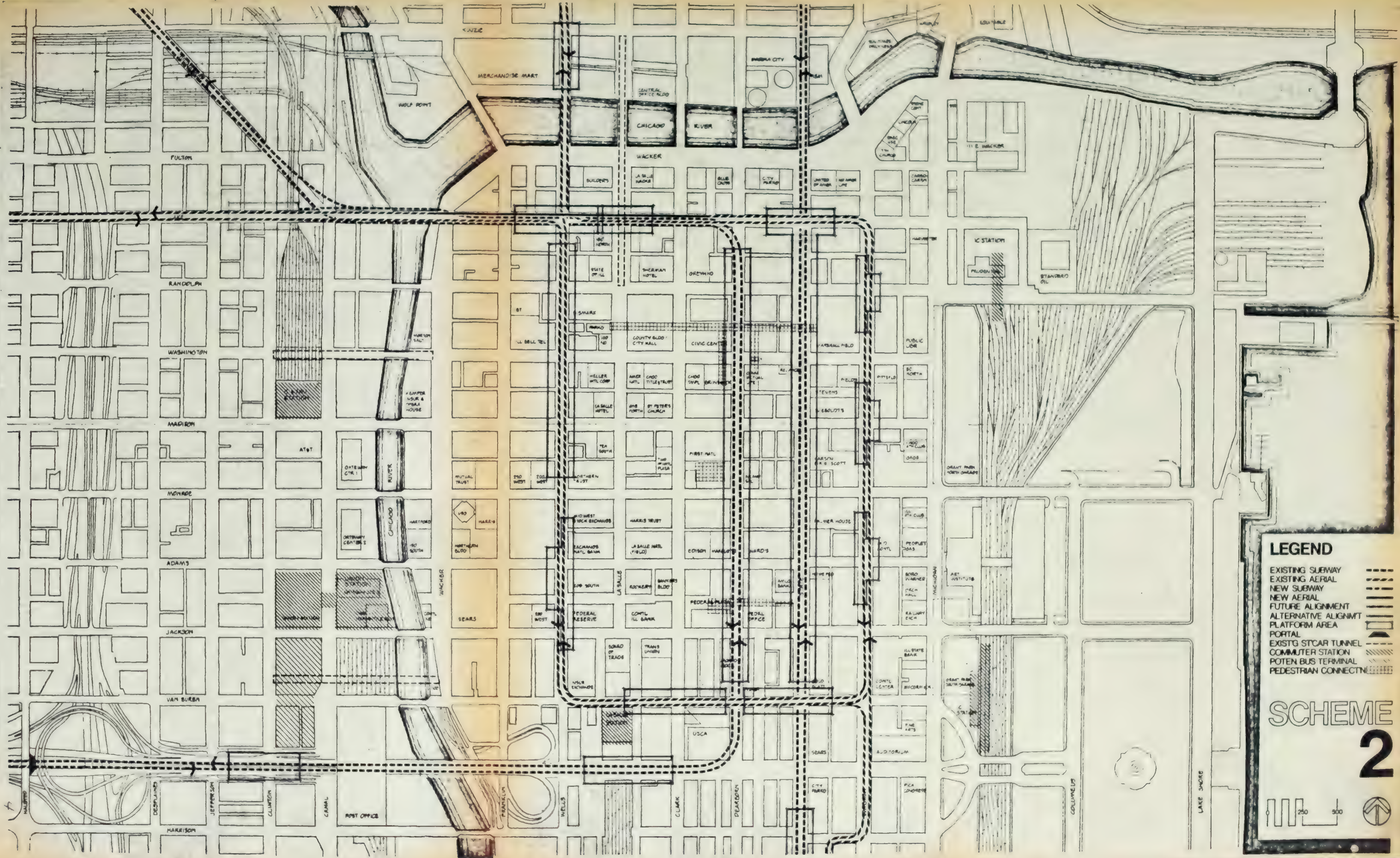
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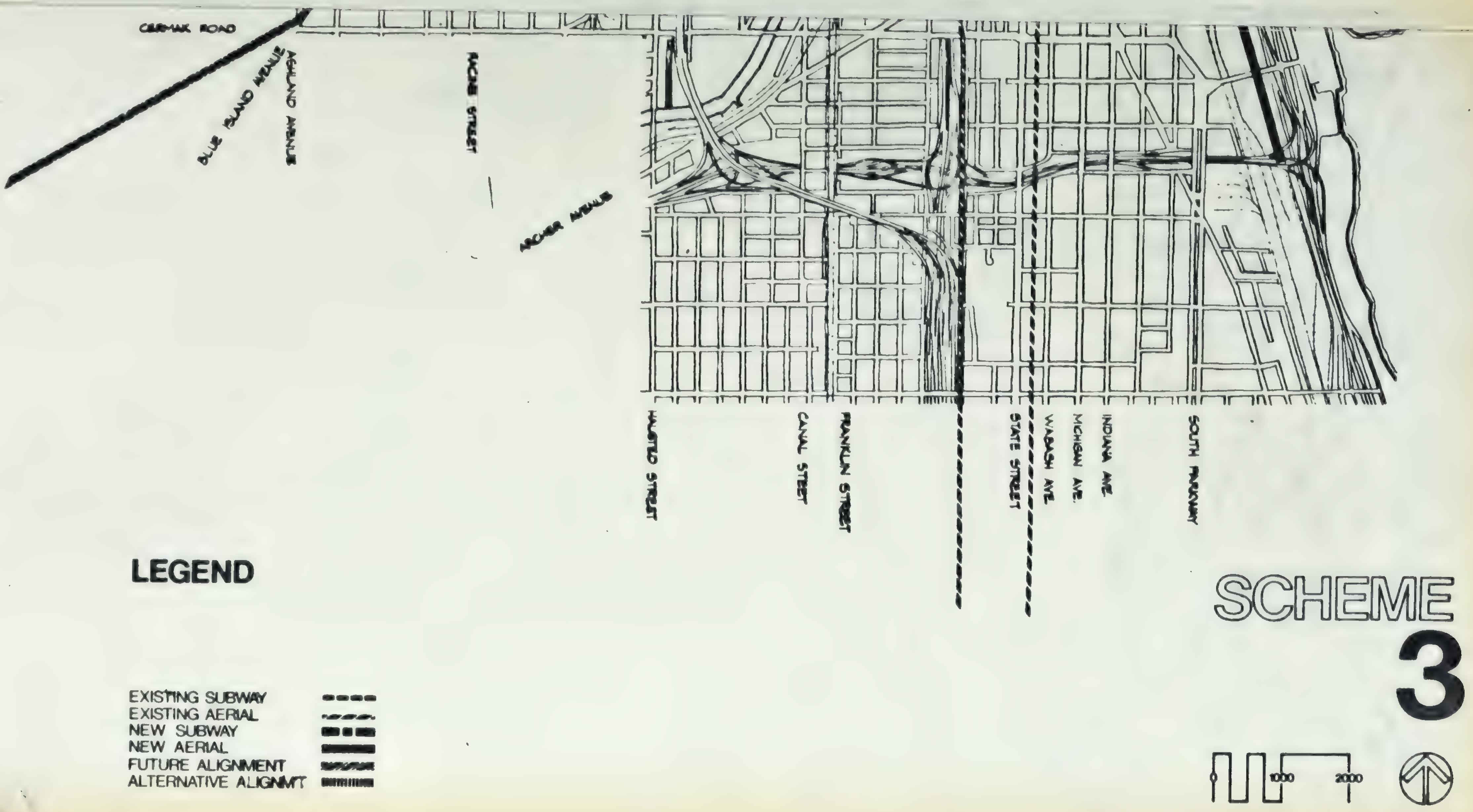

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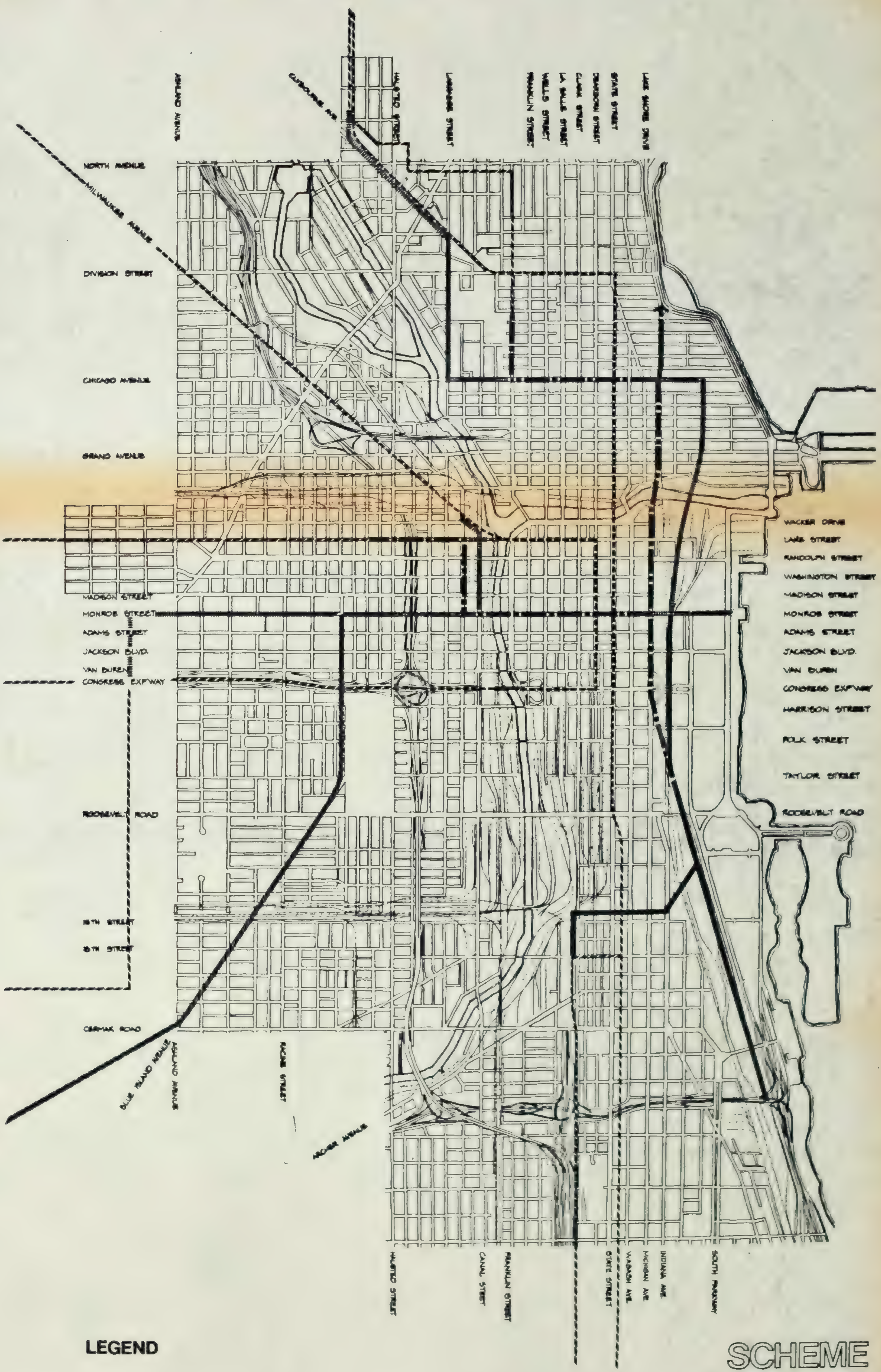

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FUTURE ALIGNMENT
ALTERNATIVE ALIGNM'T

SCHEME

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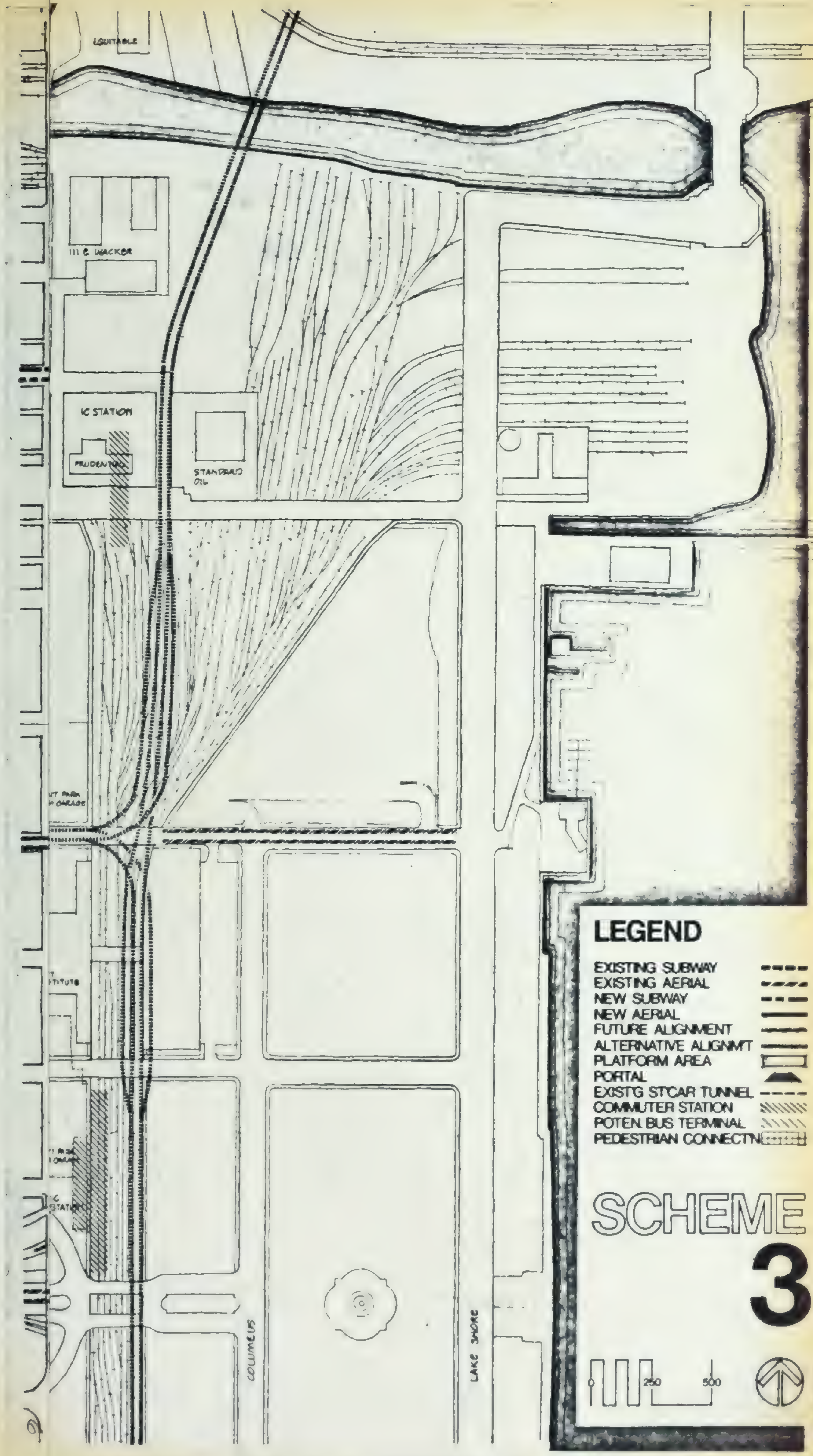
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ALTERNATIVE ALIGNM'T
PLATFORM AREA
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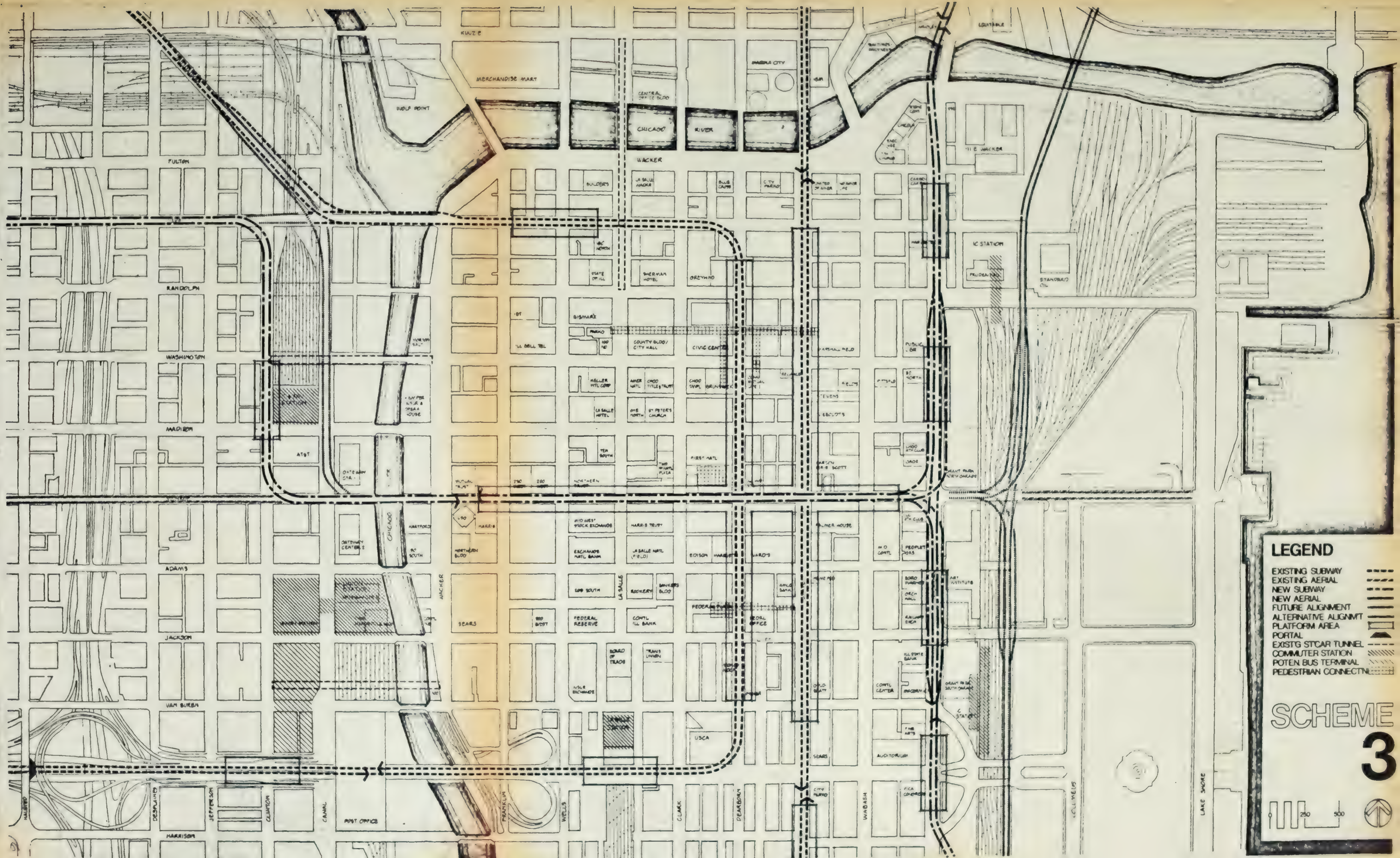
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POTEN BUS TERMINAL
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WOLF POINT
CENTRAL OFFICE BLDG
MARINA CITY
CHICAGO
RIVER
WACKER
FULTON
RANDOLPH
WASHINGTON
MADISON
ADAMS
JACKSON
VAN BUREN
HARRISON
HALSTED
DESPLAINES
JEFFERSON
CLINTON
CANAL
FRANKLIN
WELLS
LA SALLE
CLARK
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CITY PARKG
STATE OF ILL
SHERMAN HOTEL
GREYHND
BISMARK
ILL BELL TEL
COUNTY BLDG / CITY HALL
CIVIC CENTER
MARSHALL FIELD
KELLER MTL CORP
AMER NATL
CHGO TITLE & TRUST
CHGO TMPL
BRUNSWICK
STEVENS
LA SALLE HOTEL
ONE NORTH
ST PETER'S CHURCH
TEN SOUTH
FIRST NATL
CARSON PIRIE SCOTT
NORTHERN TRUST
MUTUAL TRUST
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HARRIS TRUST
PALMER HOUSE
EXCHANGE NATL BANK
LA SALLE NATL (FIELD)
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FINE ARTS
ART INSTITUTE
ORCH HALL
PUBLIC LIBR
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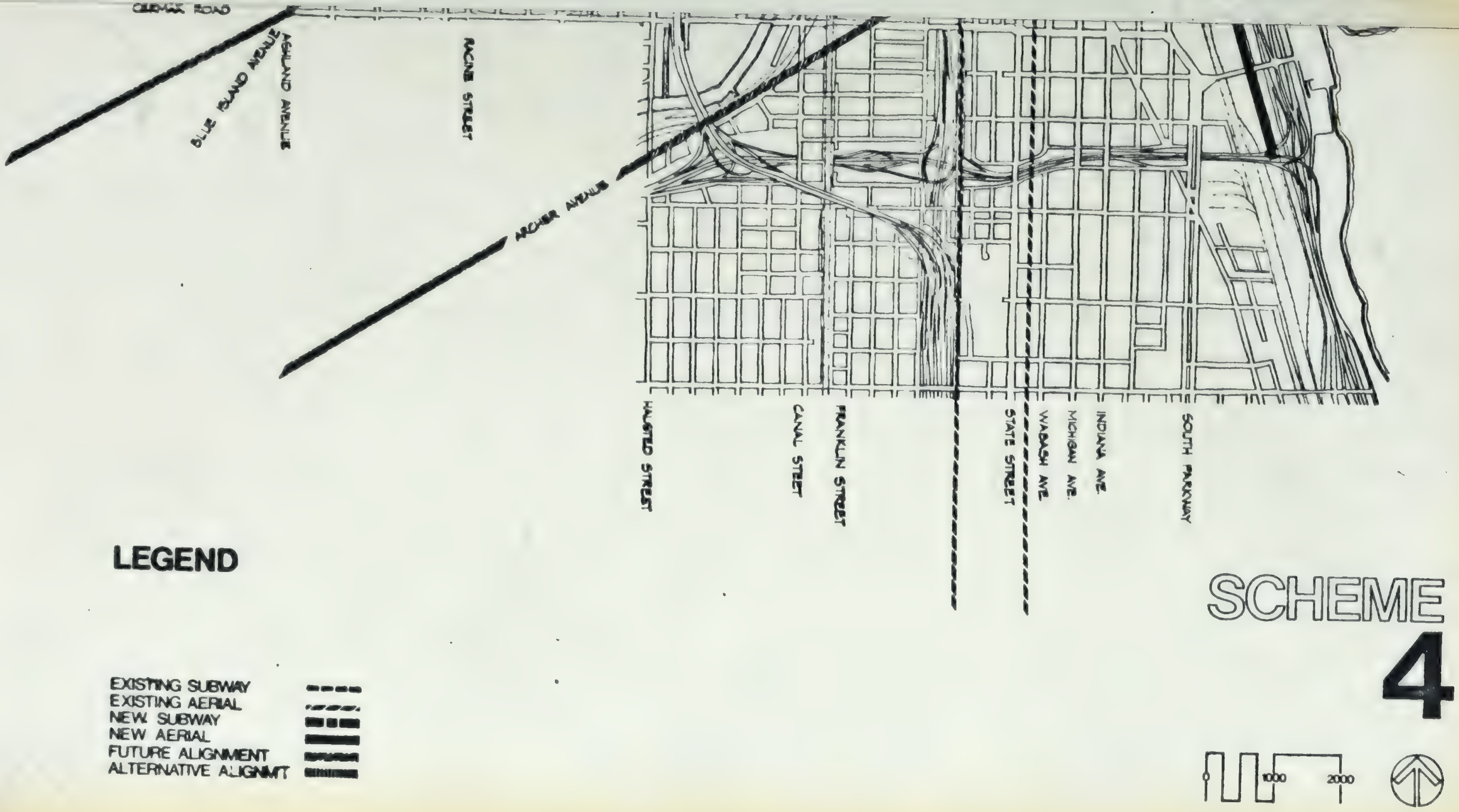
SCHEME 4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STATE STREET
WABASH AVE.
MICHIGAN AVE.
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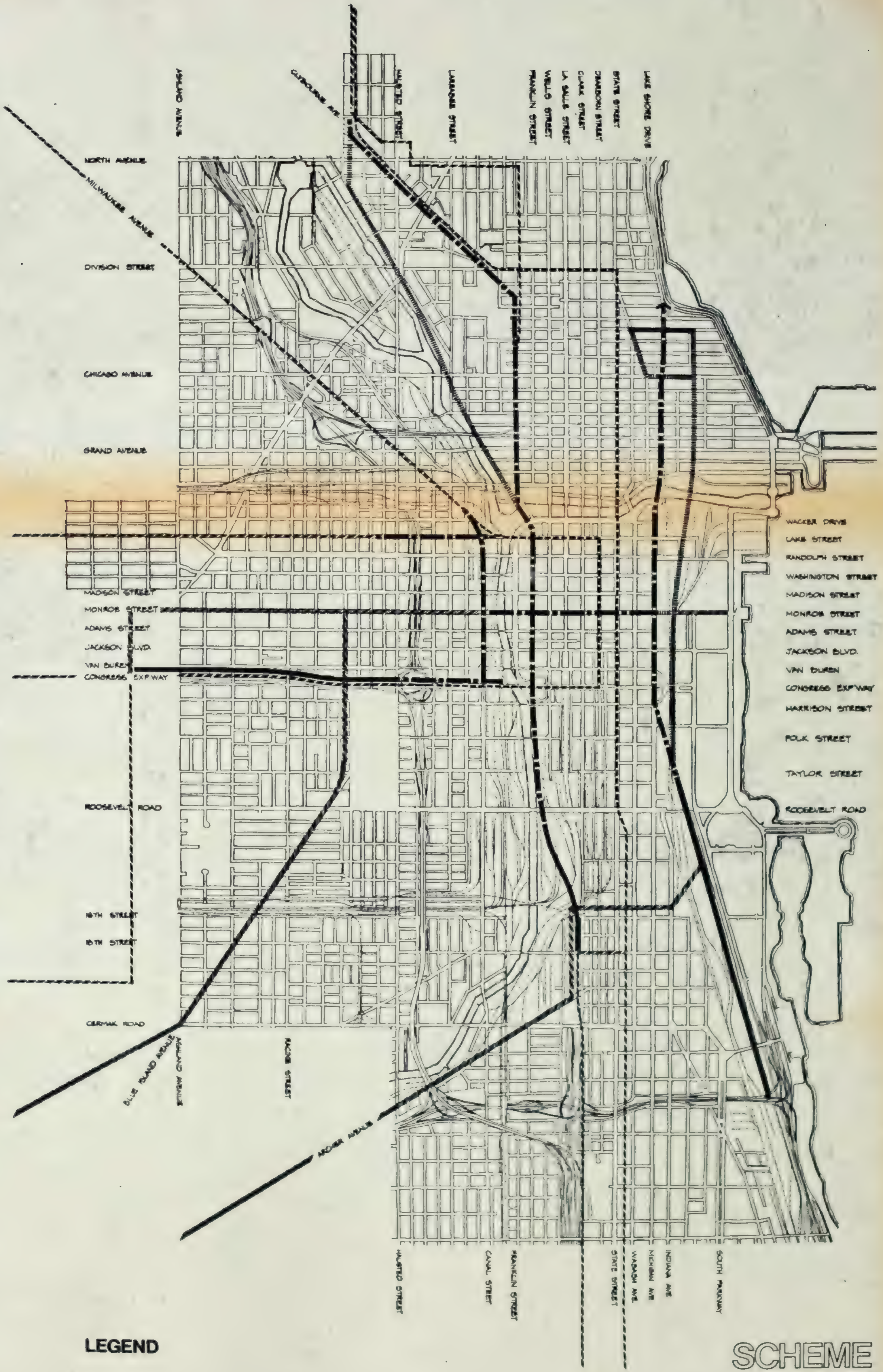

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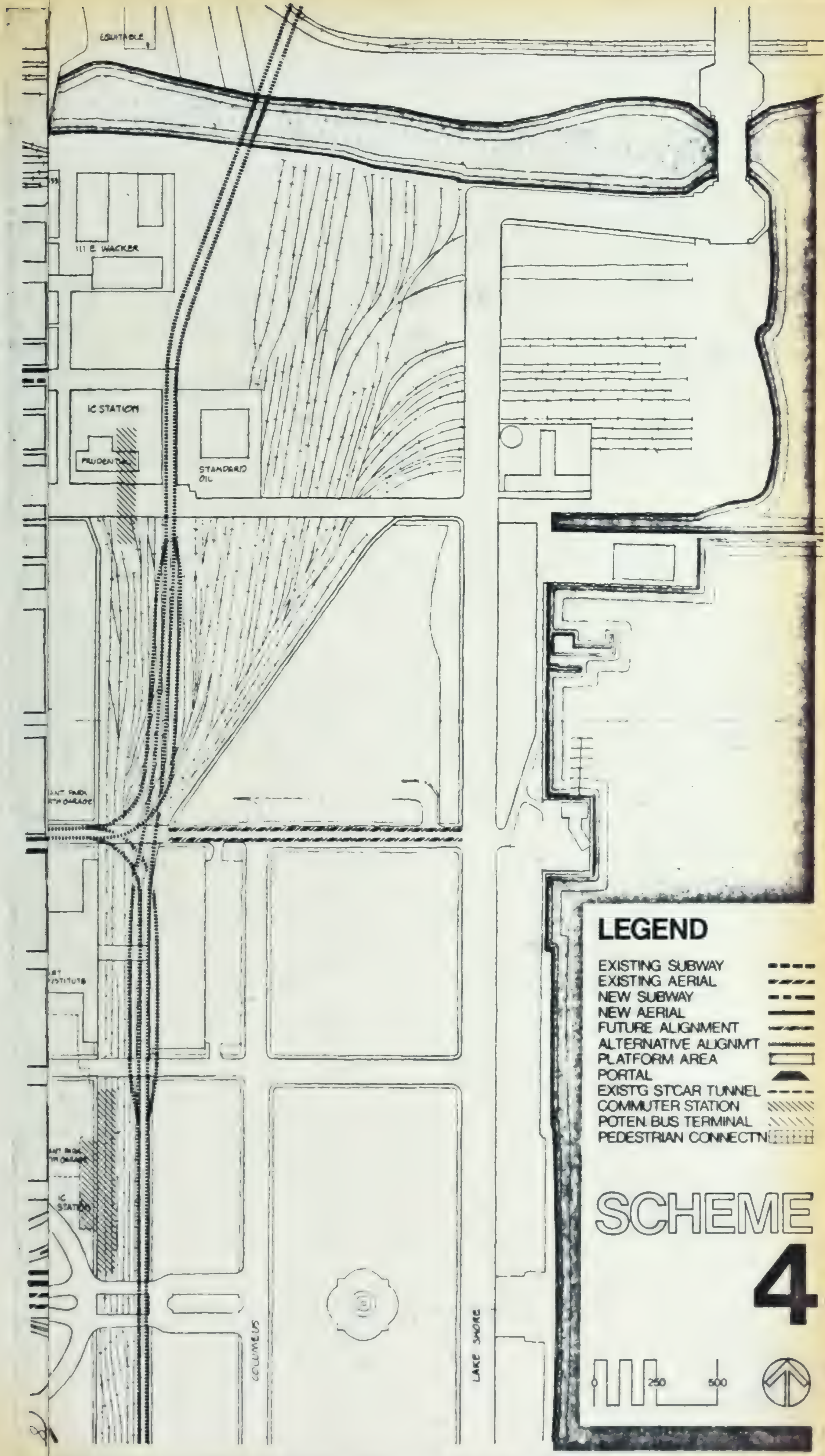
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ALTERNATIVE ALIGNM'T
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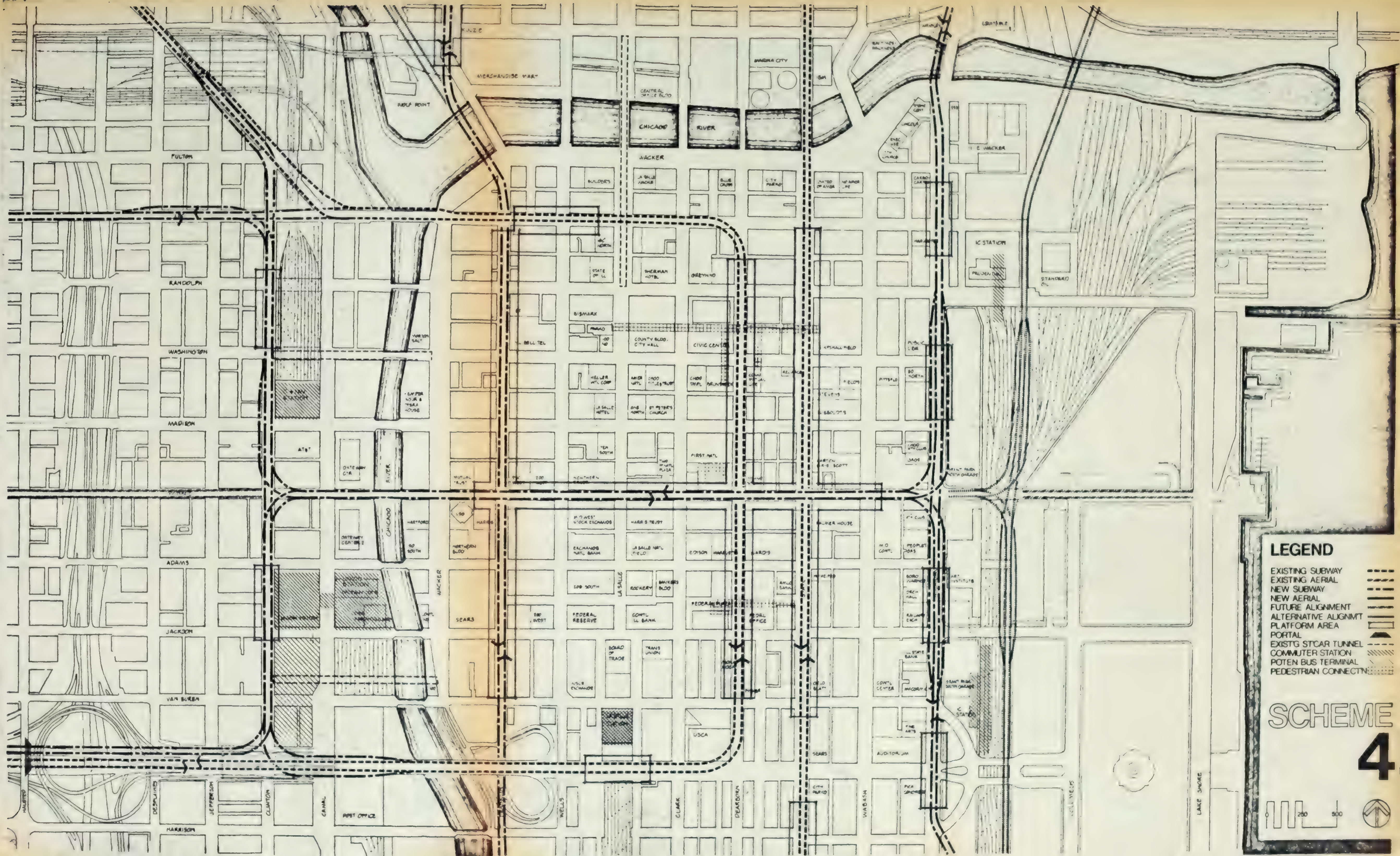
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MARSHALL FIELD
PUBLIC LIBR
WASHINGTON
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HELLER INTL CORP
AMER NATL
CHGO TITLE & TRUST
CHGO TMPL
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TWO FIRST NATL PLAZA
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CHGO ATH CLUB
MUTUAL TRUST
NORTHERN TRUST
GRANT PARK NORTH GARAGE
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GATEWAY CENTER 2
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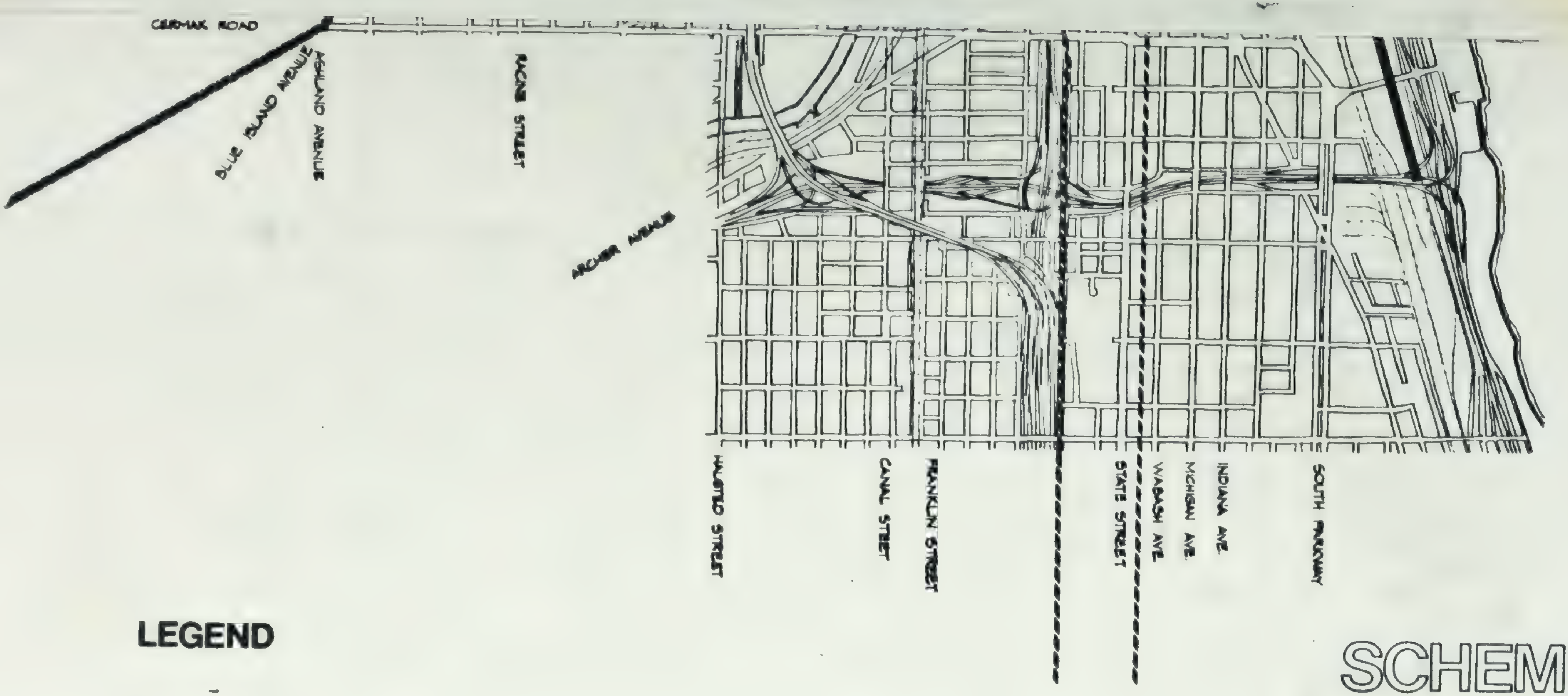
SCHEME 5



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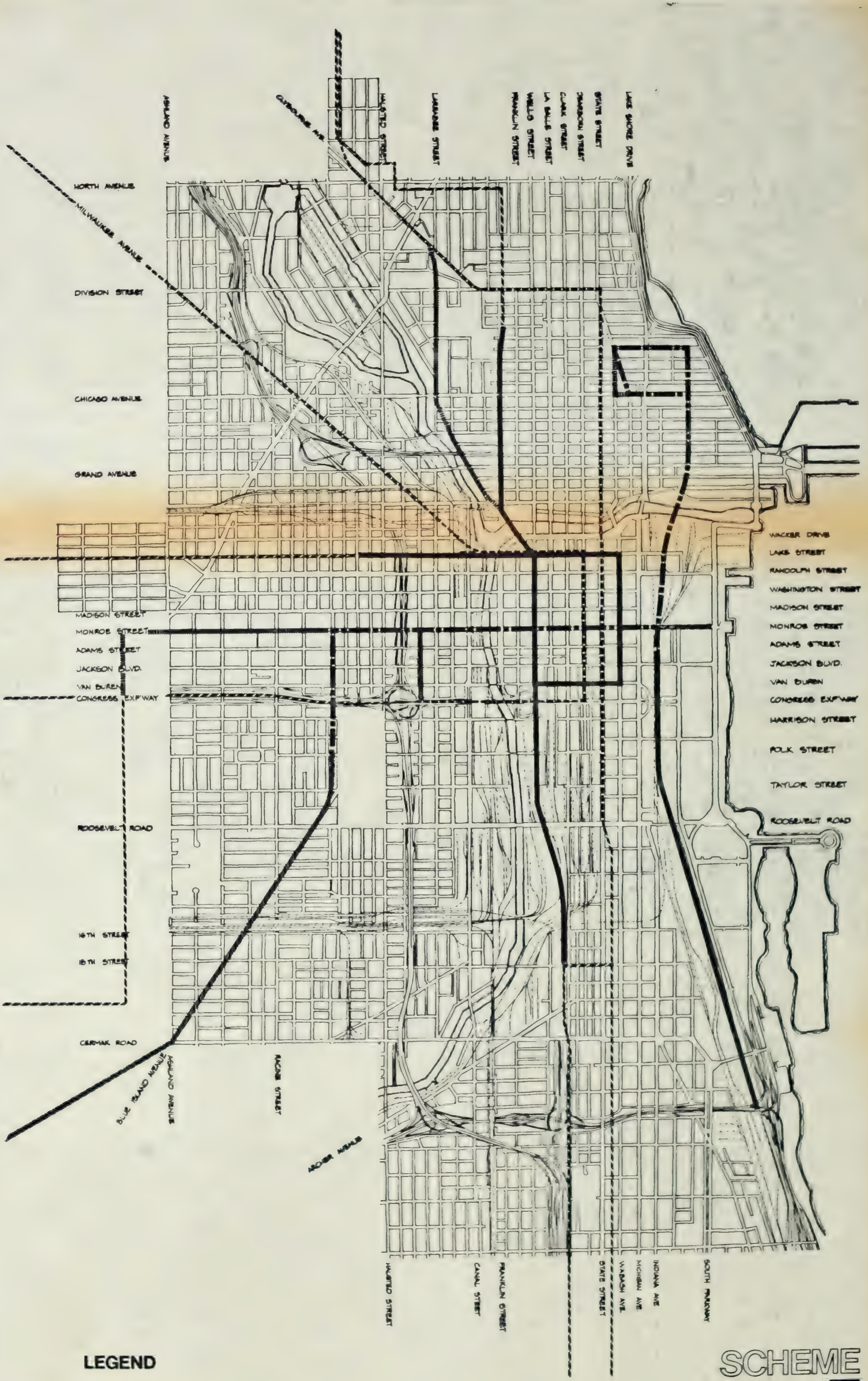
- FUTURE ALIGNMENT
- ALTERNATIVE ALIGNM'T



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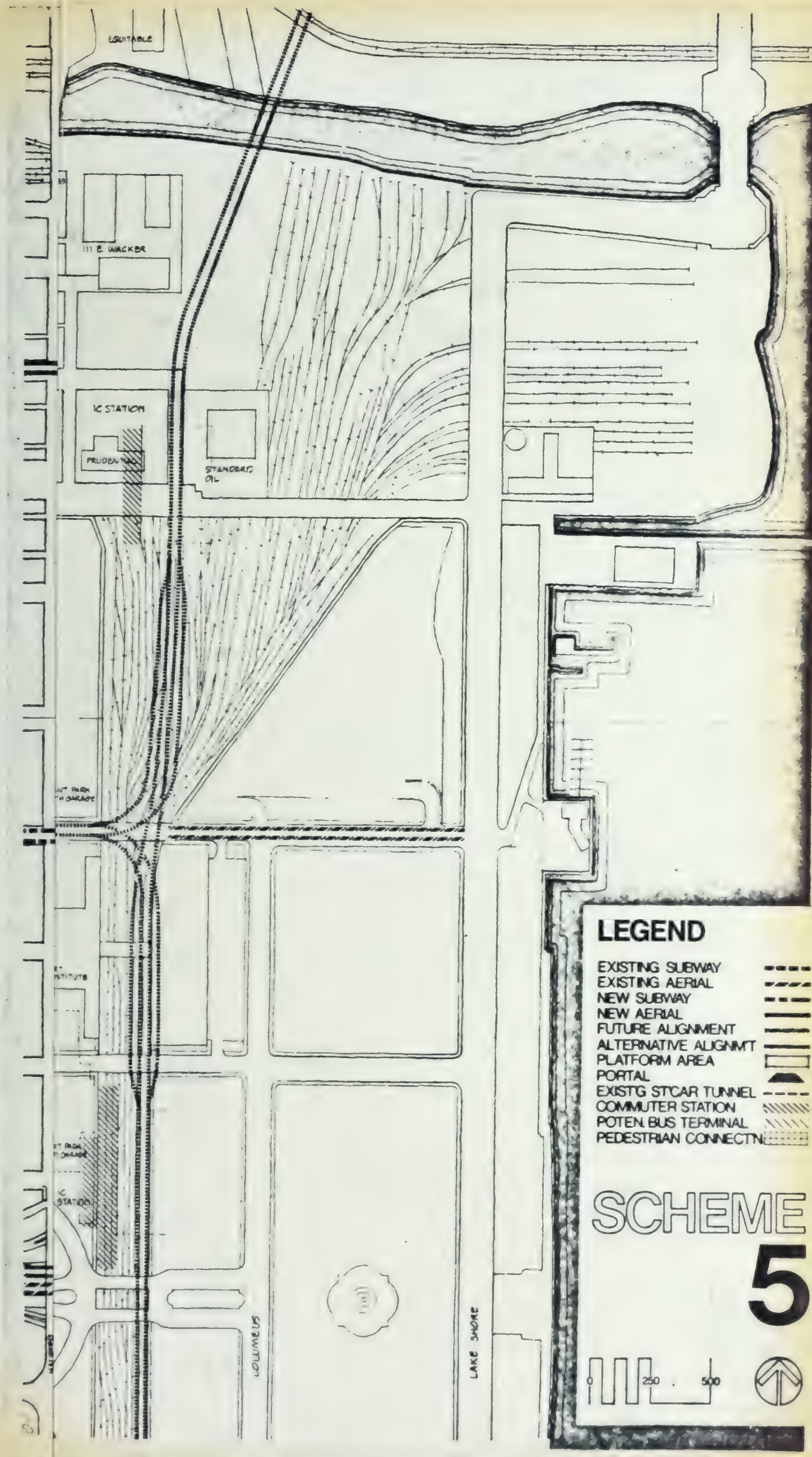
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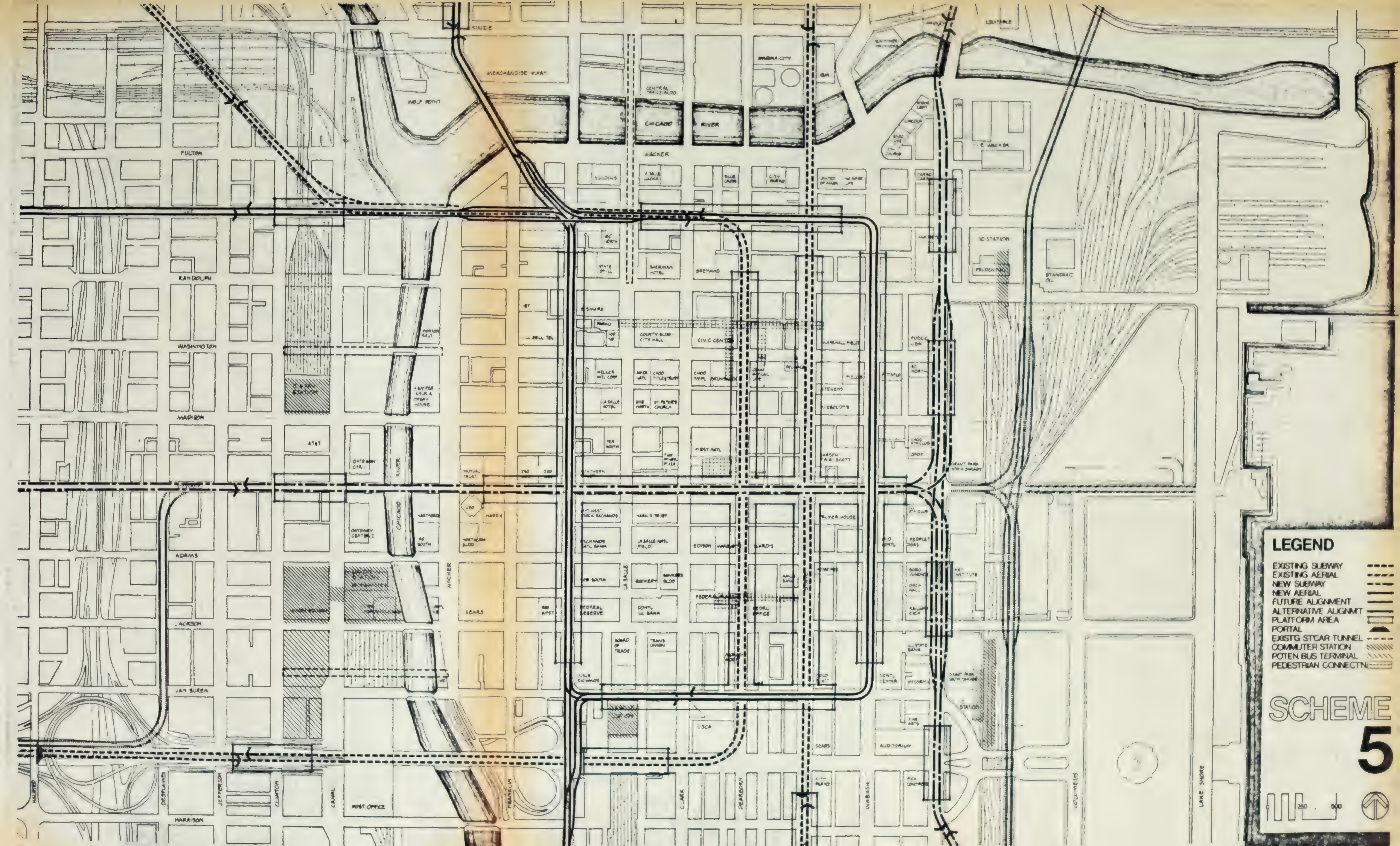

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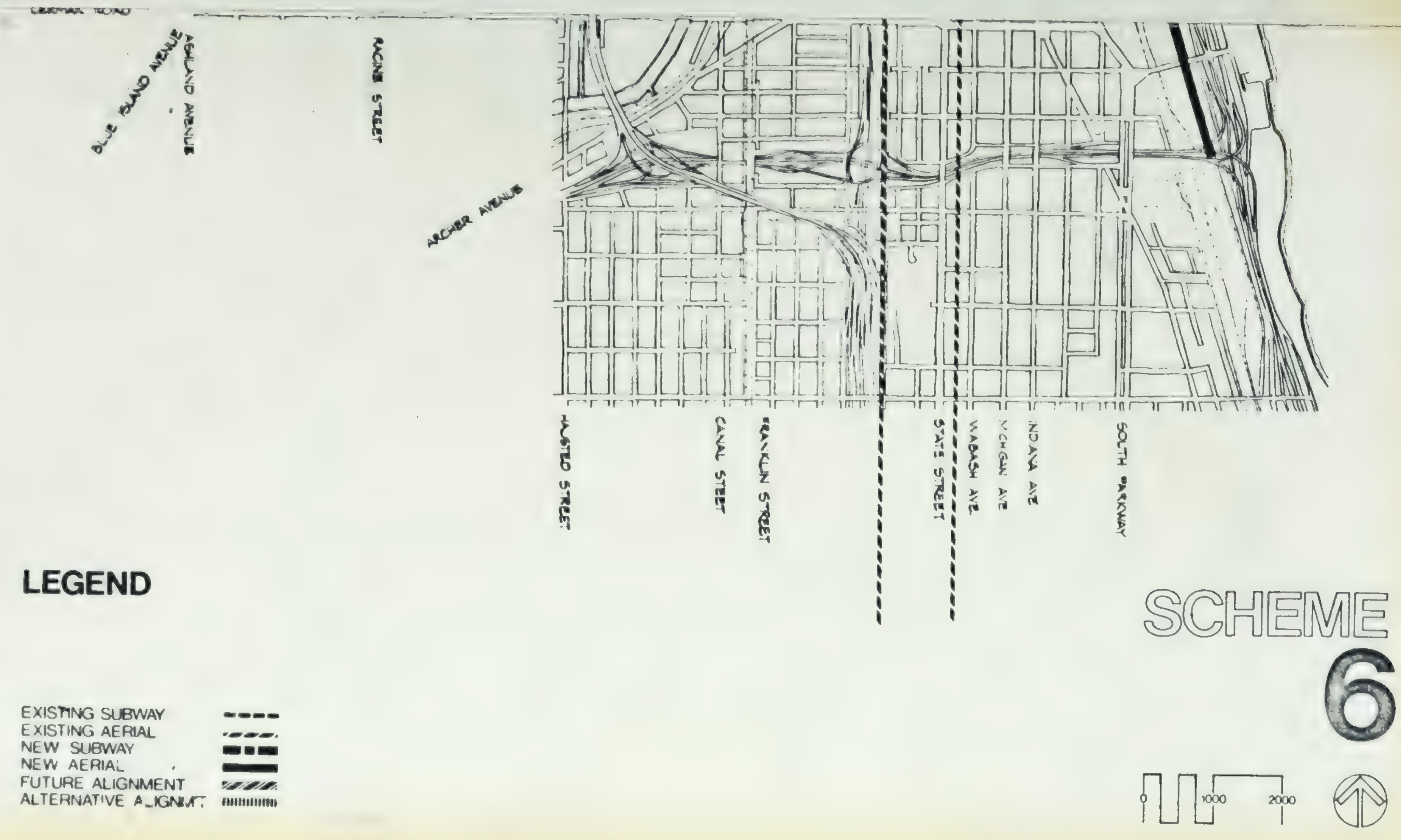

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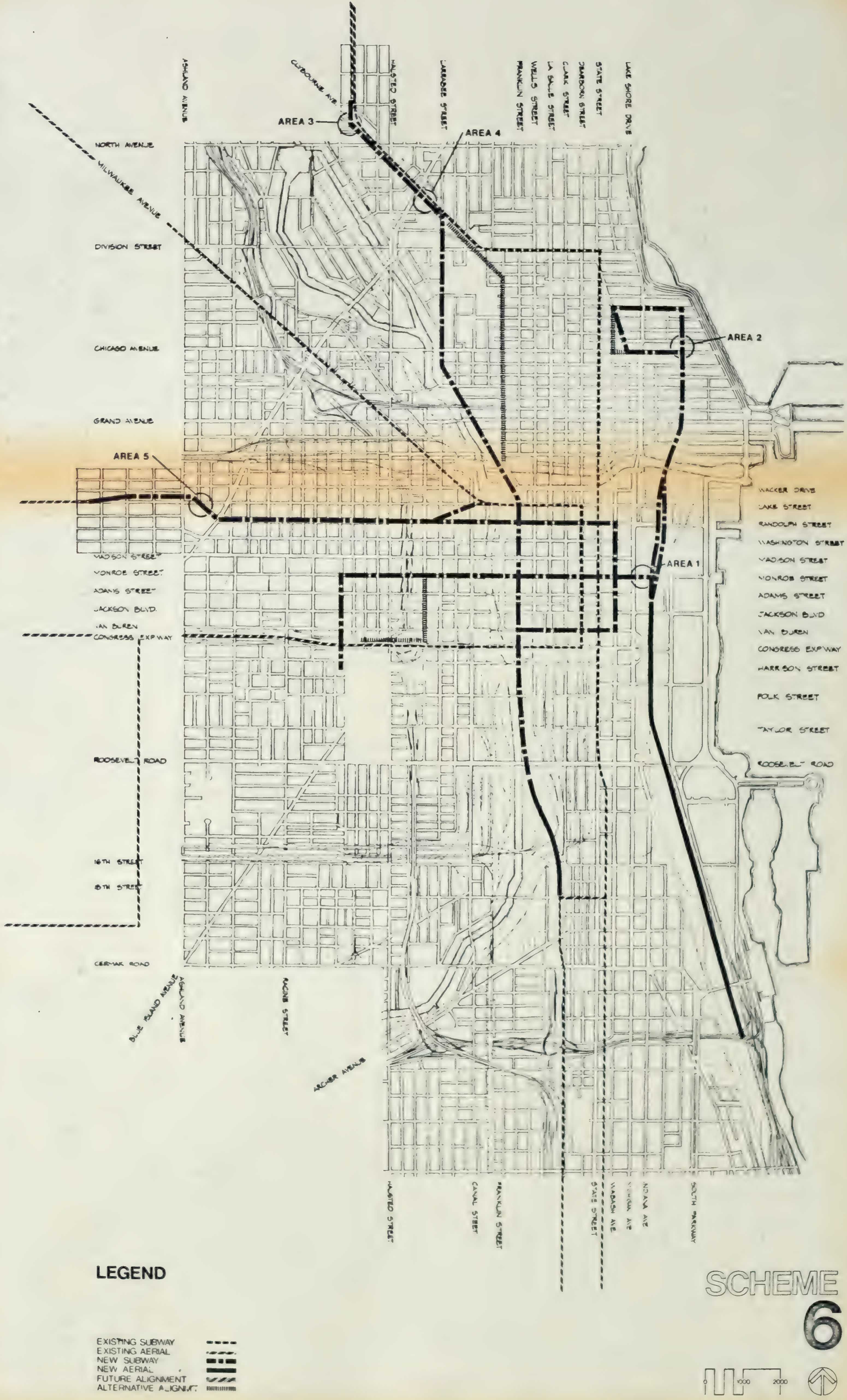

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LA SALLE STREET
CLARK STREET
DEARBORN STREET
STATE STREET
LAKE SHORE DRIVE
AREA 3
AREA 4
AREA 2
AREA 5
AREA 1
NORTH AVENUE
MILWAUKEE AVENUE
DIVISION STREET
CHICAGO AVENUE
GRAND AVENUE
MADISON STREET
MONROE STREET
ADAMS STREET
JACKSON BLVD.
VAN BUREN
CONGRESS EXP'WAY
ROOSEVELT ROAD
16TH STREET
18TH STREET
CERMAK ROAD
BLUE ISLAND AVENUE
ASHLAND AVENUE
RACINE STREET
ARCHER AVENUE
WACKER DRIVE
LAKE STREET
RANDOLPH STREET
WASHINGTON STREET
MADISON STREET
MONROE STREET
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POLK STREET
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MICHIGAN AVE
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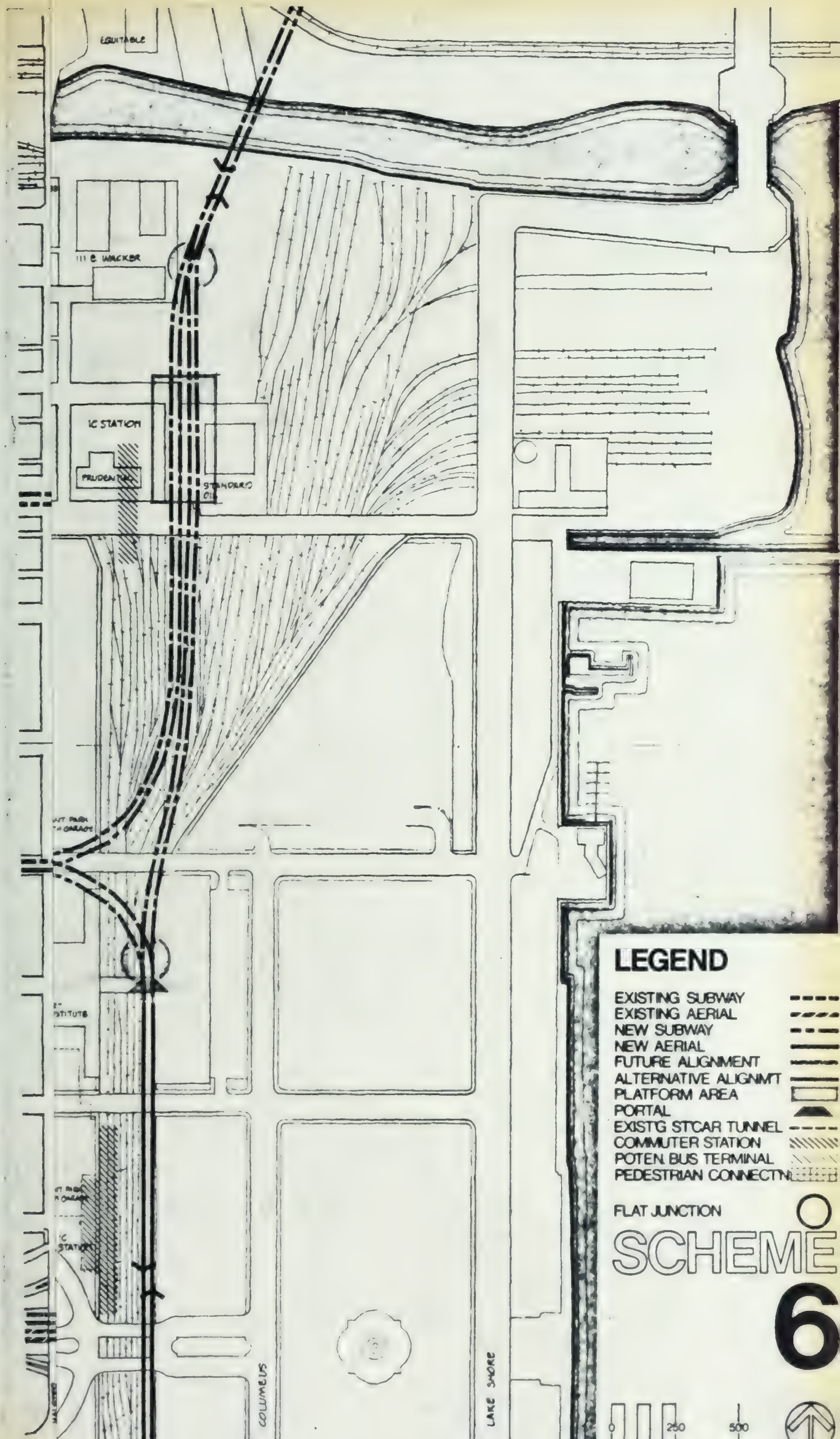
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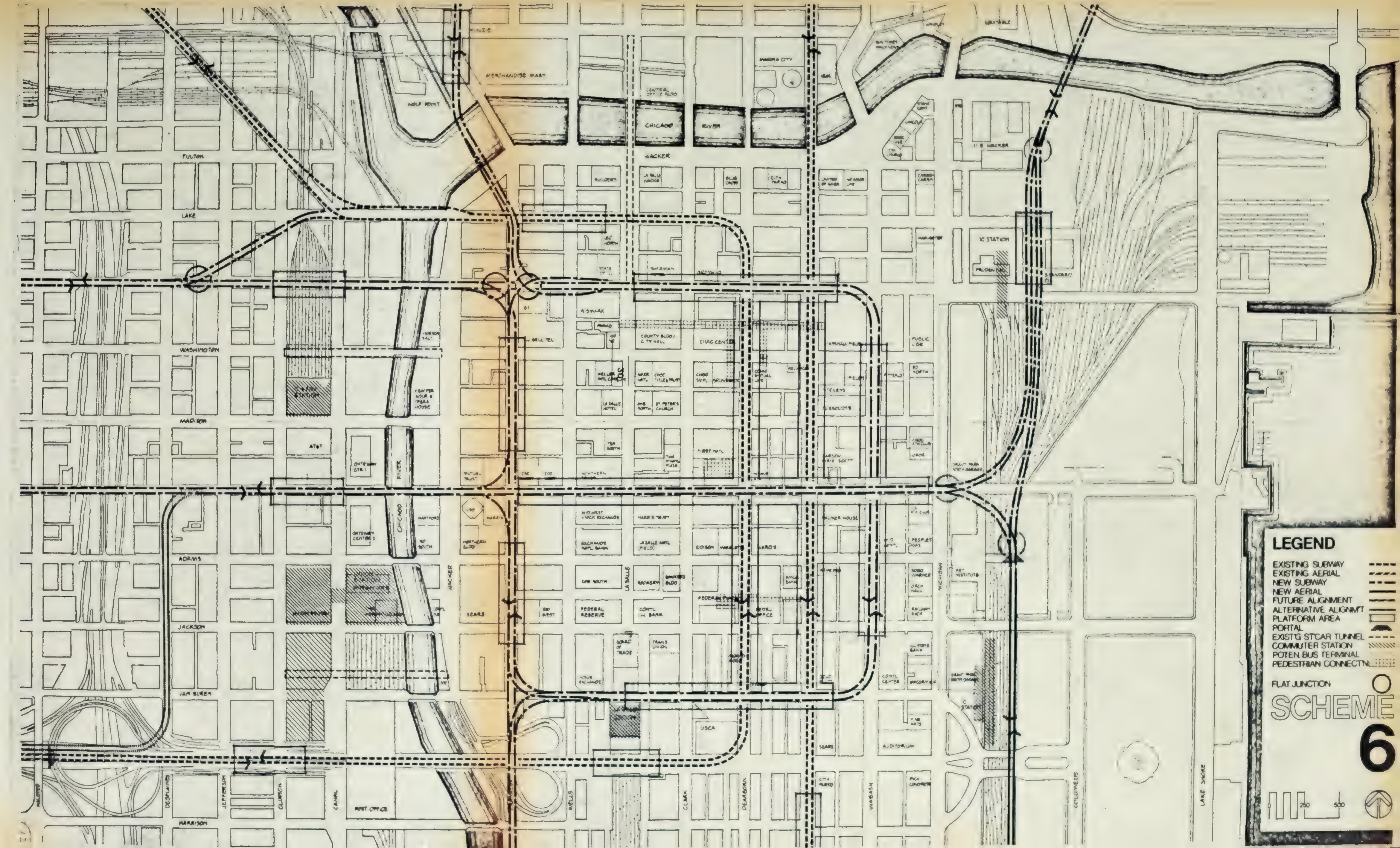
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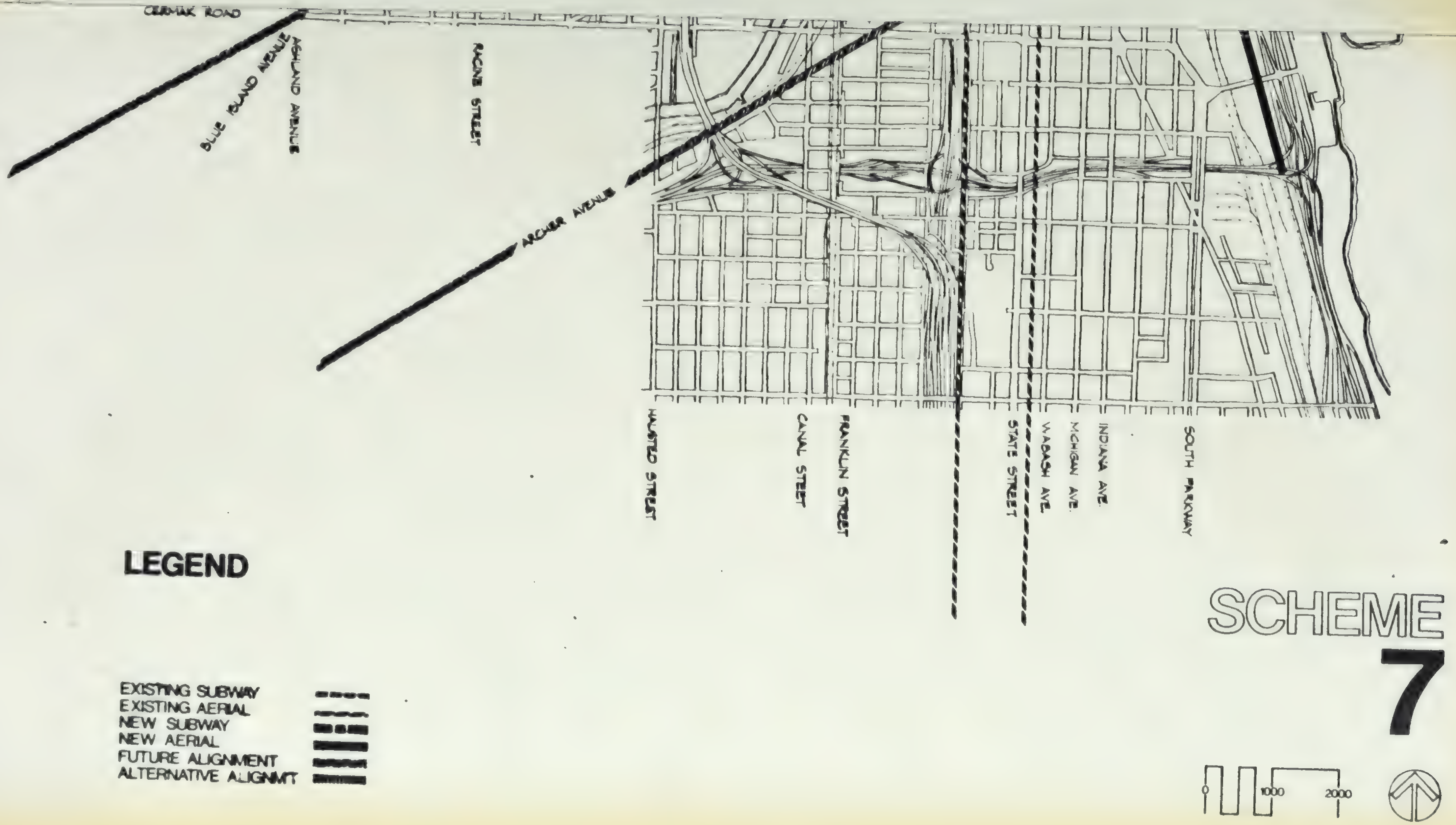
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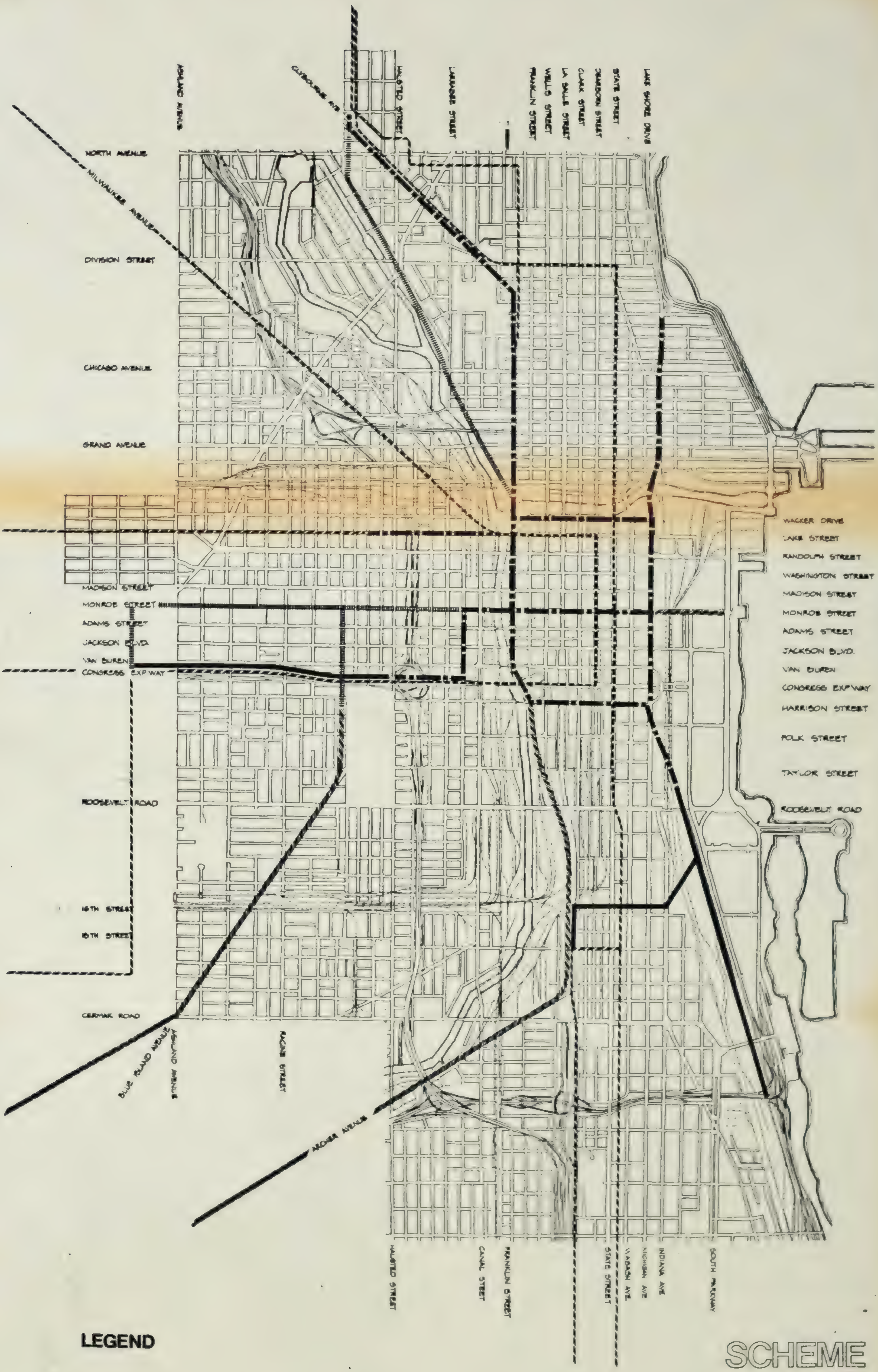

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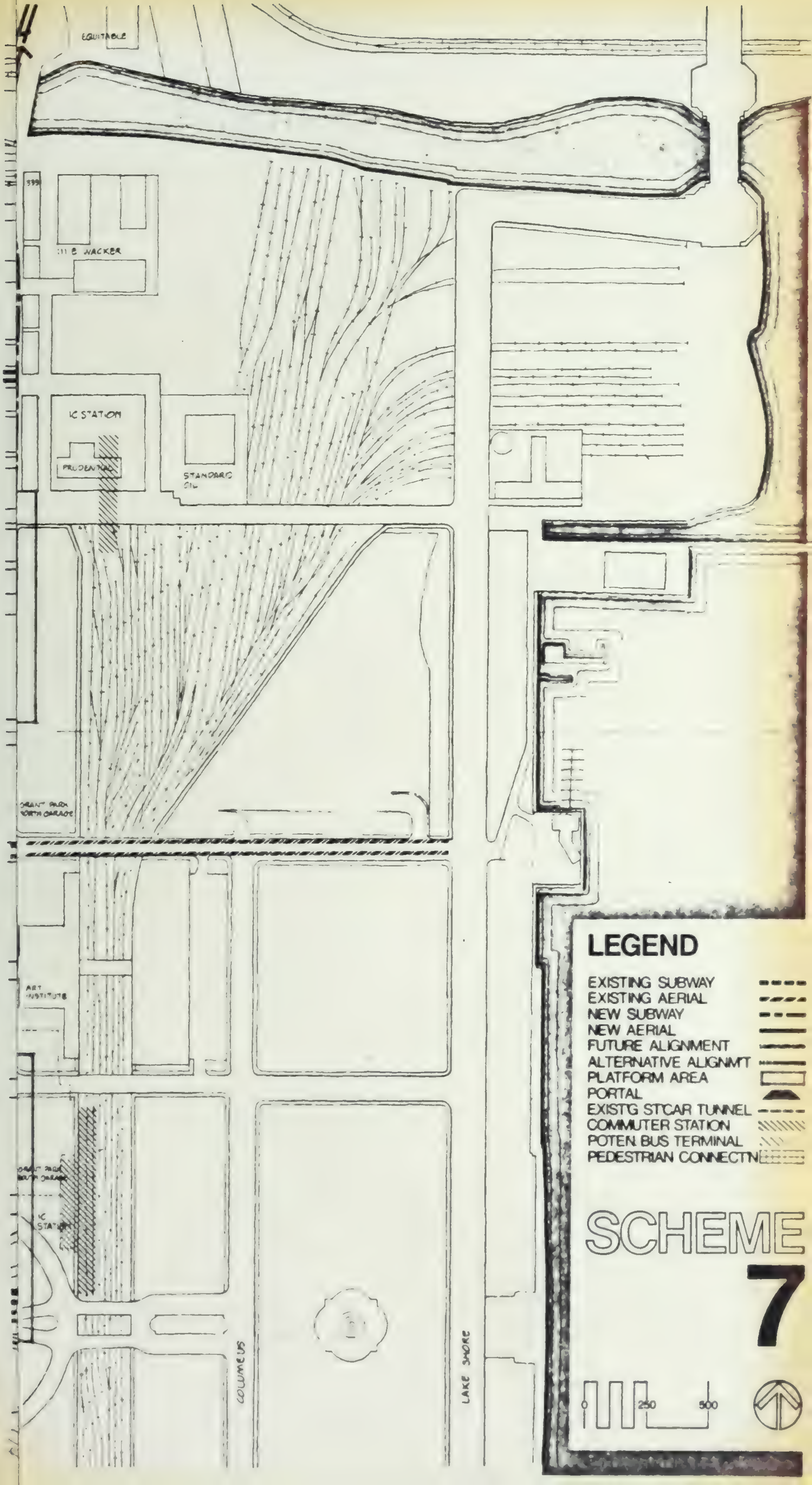
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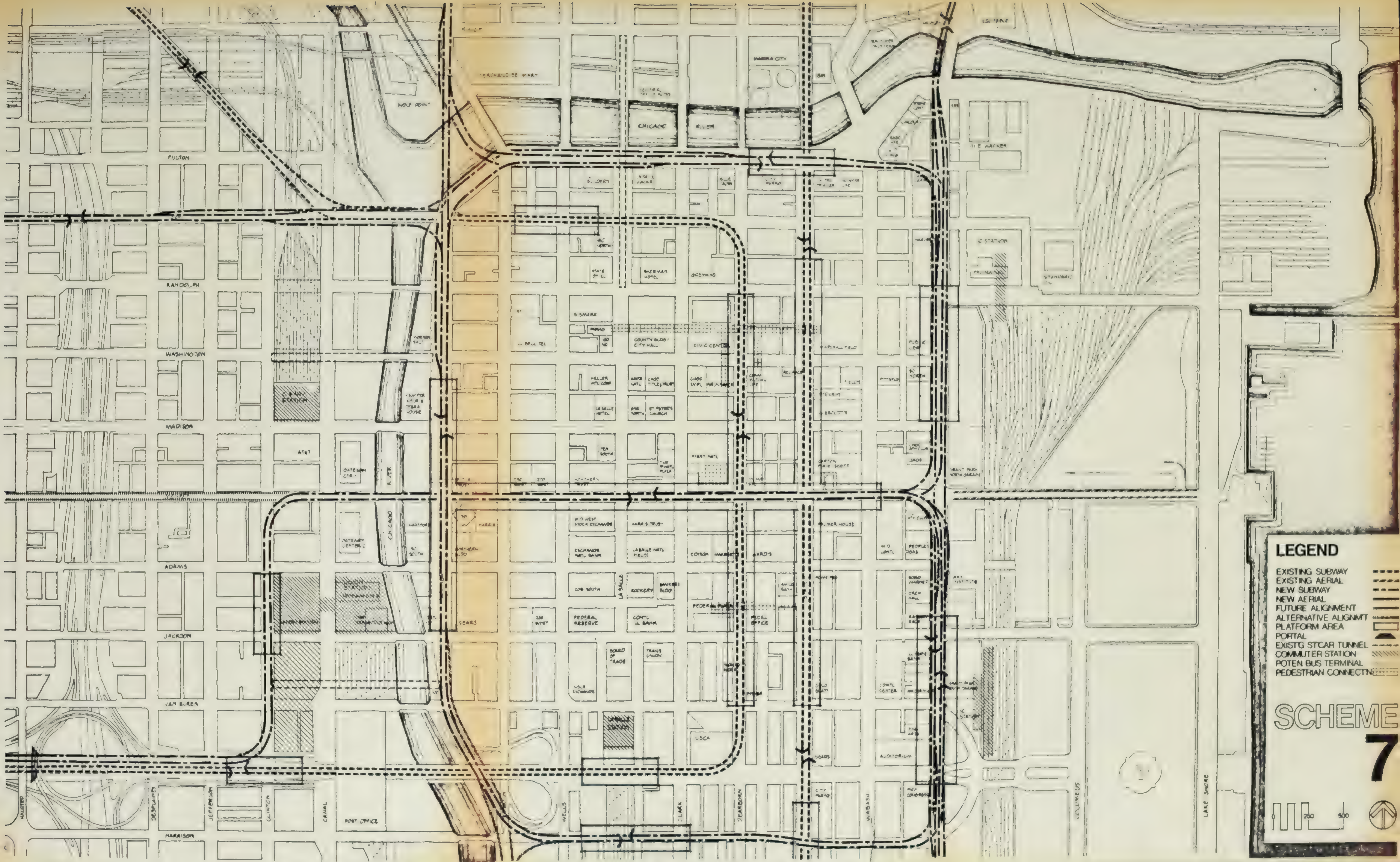
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COUNTY BLDG / CITY HALL
CIVIC CENTER
MARSHALL FIELD
PUBLIC LIB
HELLER INTL CORP
CHGO TITLE & TRUST
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ST PETER'S CHURCH
FIRST NATL
CARSON PIRIE SCOTT
GRANT PARK NORTH GARAGE
MID WEST STOCK EXCHANGE
HARRIS TRUST
PALMER HOUSE
EXCHANGE NATL BANK
LA SALLE NATL
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PEOPLES GAS
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ORCH HALL
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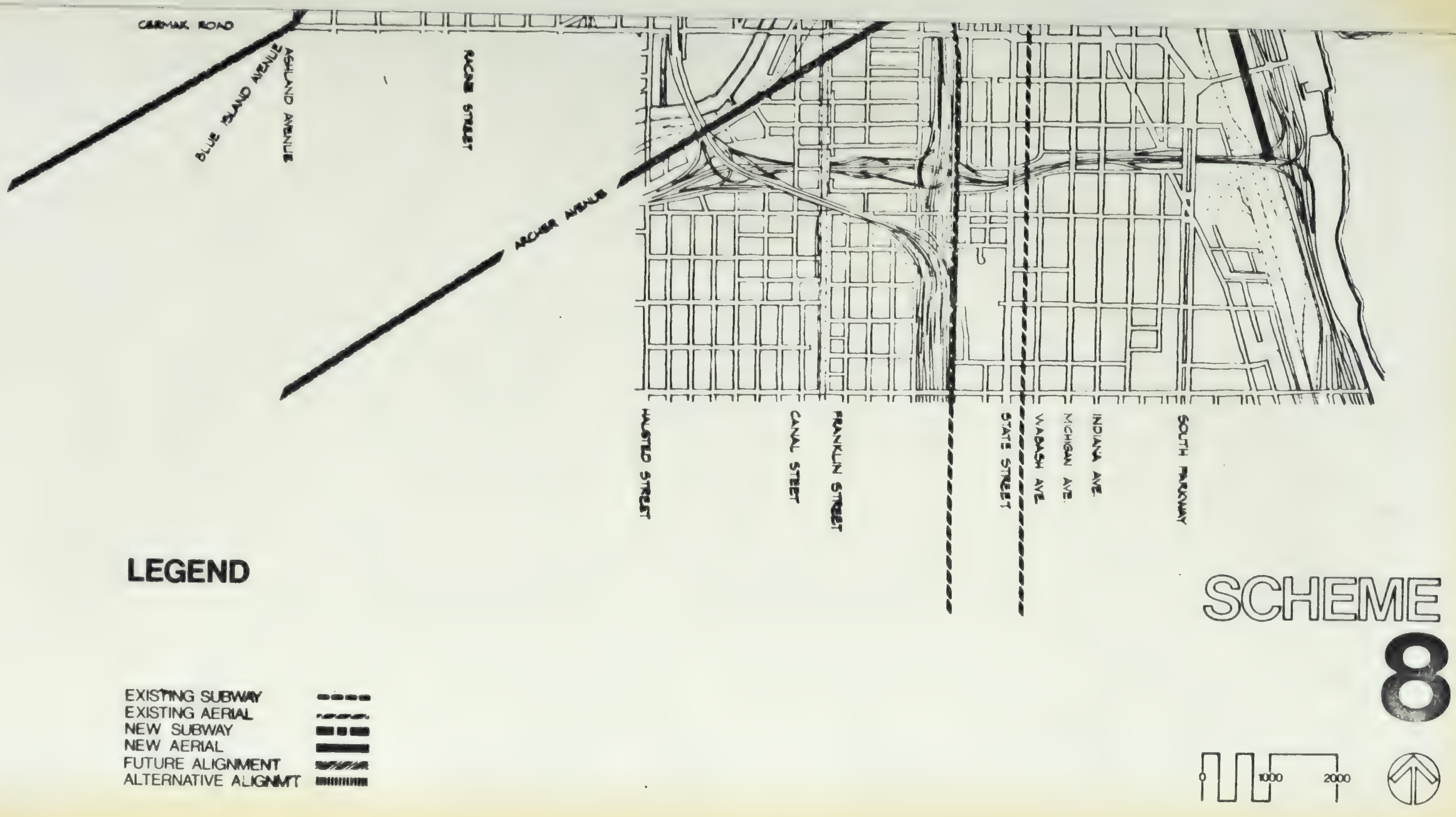
SCHEME 8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MICHIGAN AVE.
INDIANA AVE.
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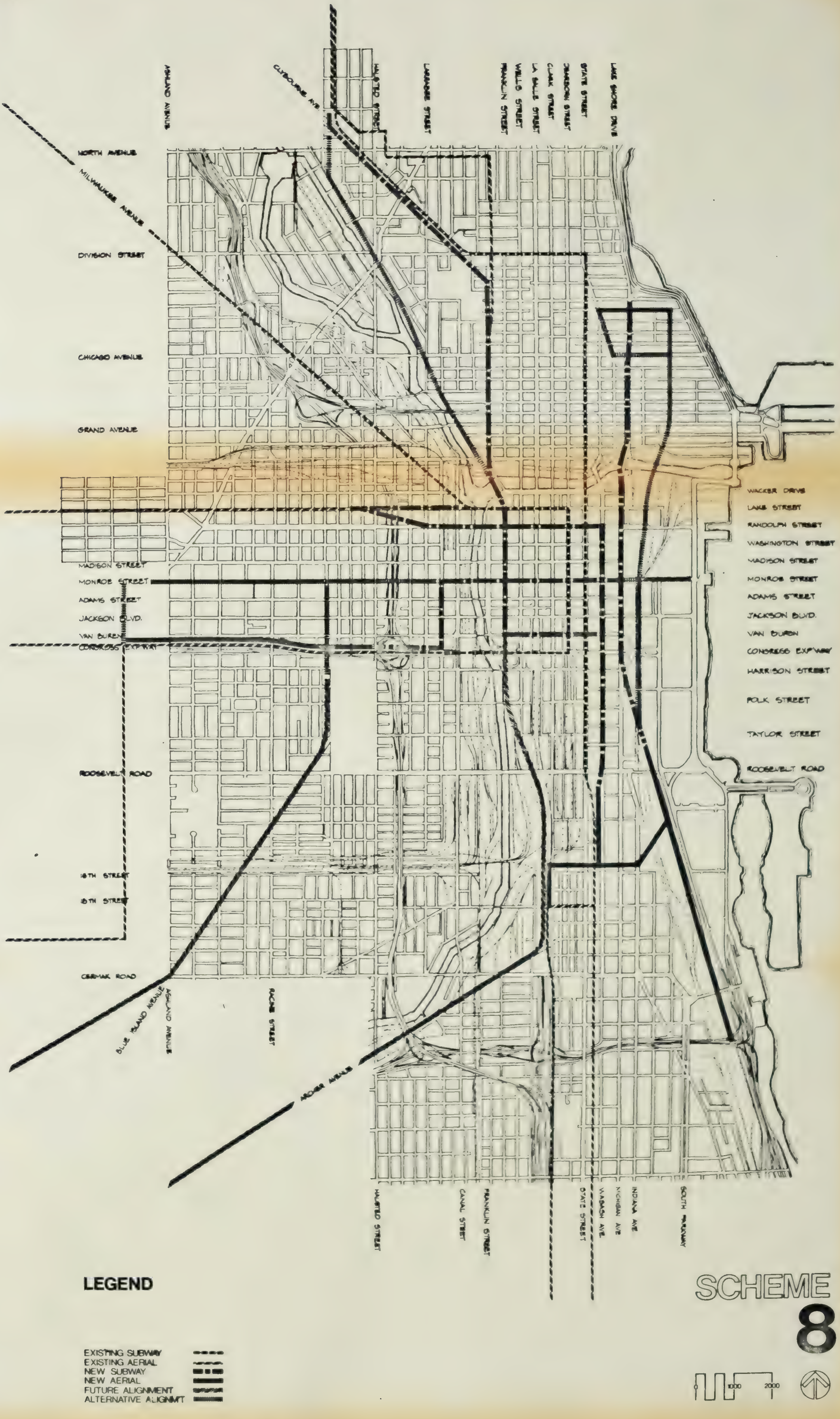

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HALSTED STREET
LARRABEE STREET
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CLARK STREET
DEARBORN STREET
STATE STREET
LAKE SHORE DRIVE
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MILWAUKEE AVENUE
DIVISION STREET
CHICAGO AVENUE
GRAND AVENUE
MADISON STREET
MONROE STREET
ADAMS STREET
JACKSON BLVD.
VAN BUREN
CONGRESS EXP'WAY
ROOSEVELT ROAD
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18TH STREET
CERMAK ROAD
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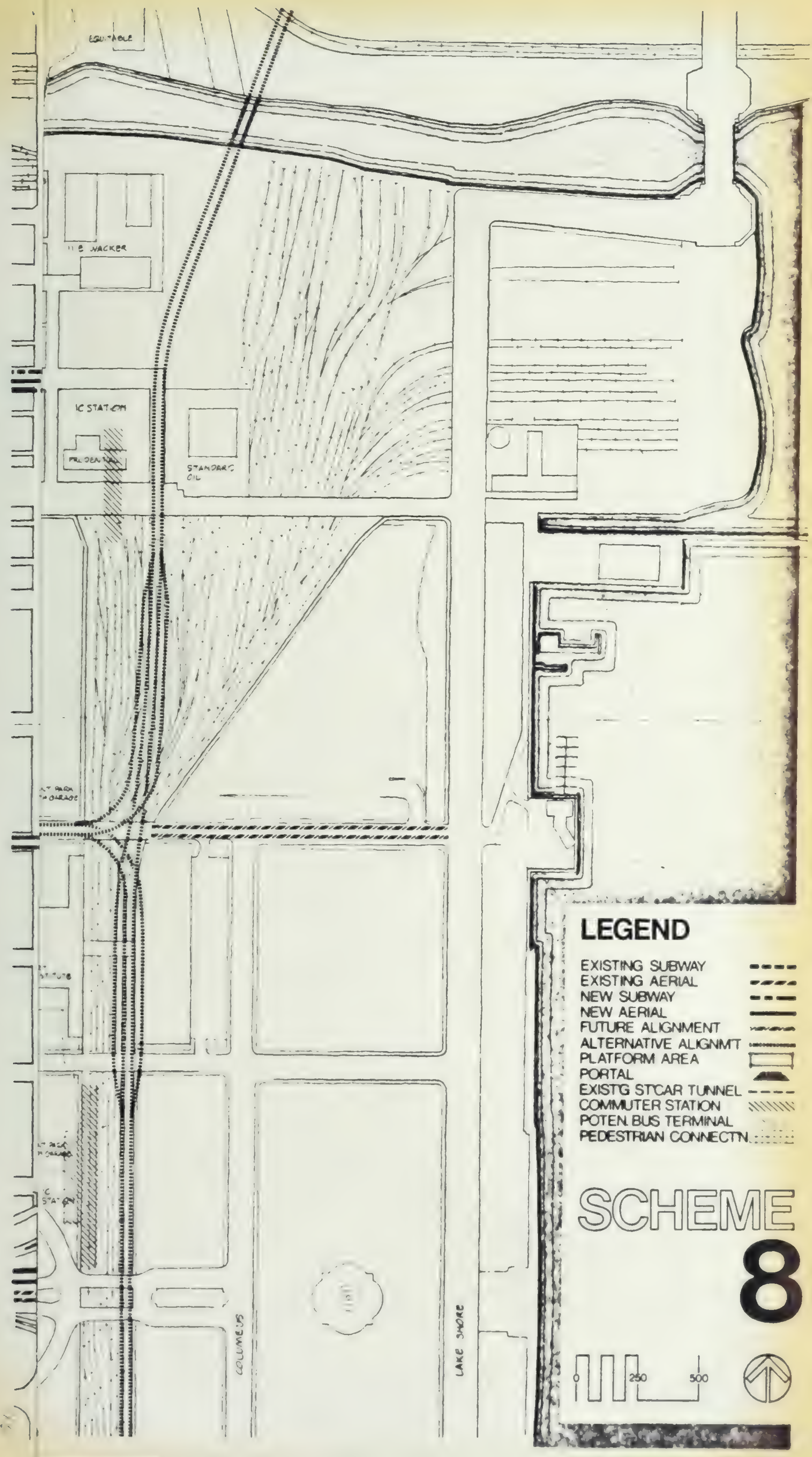
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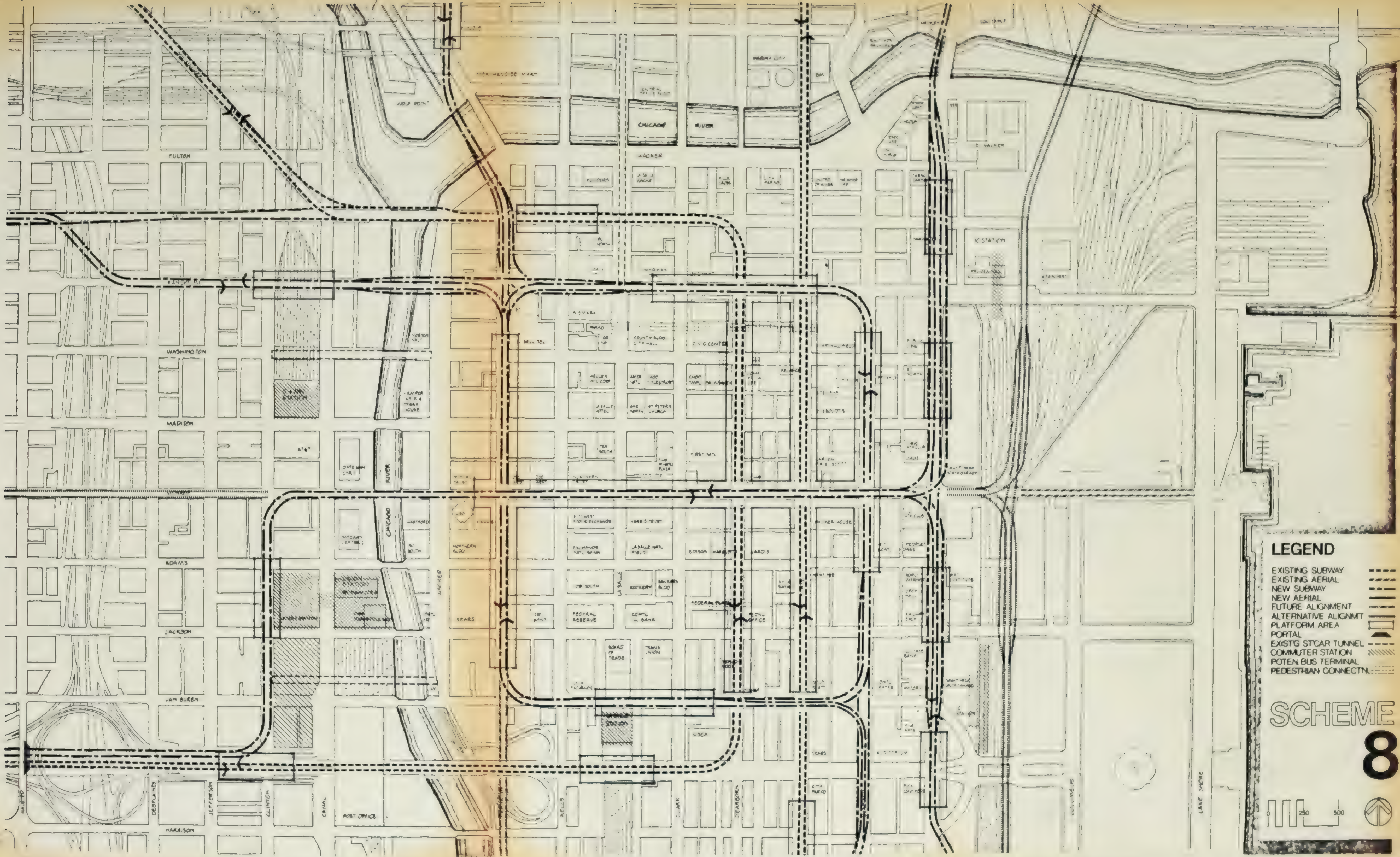
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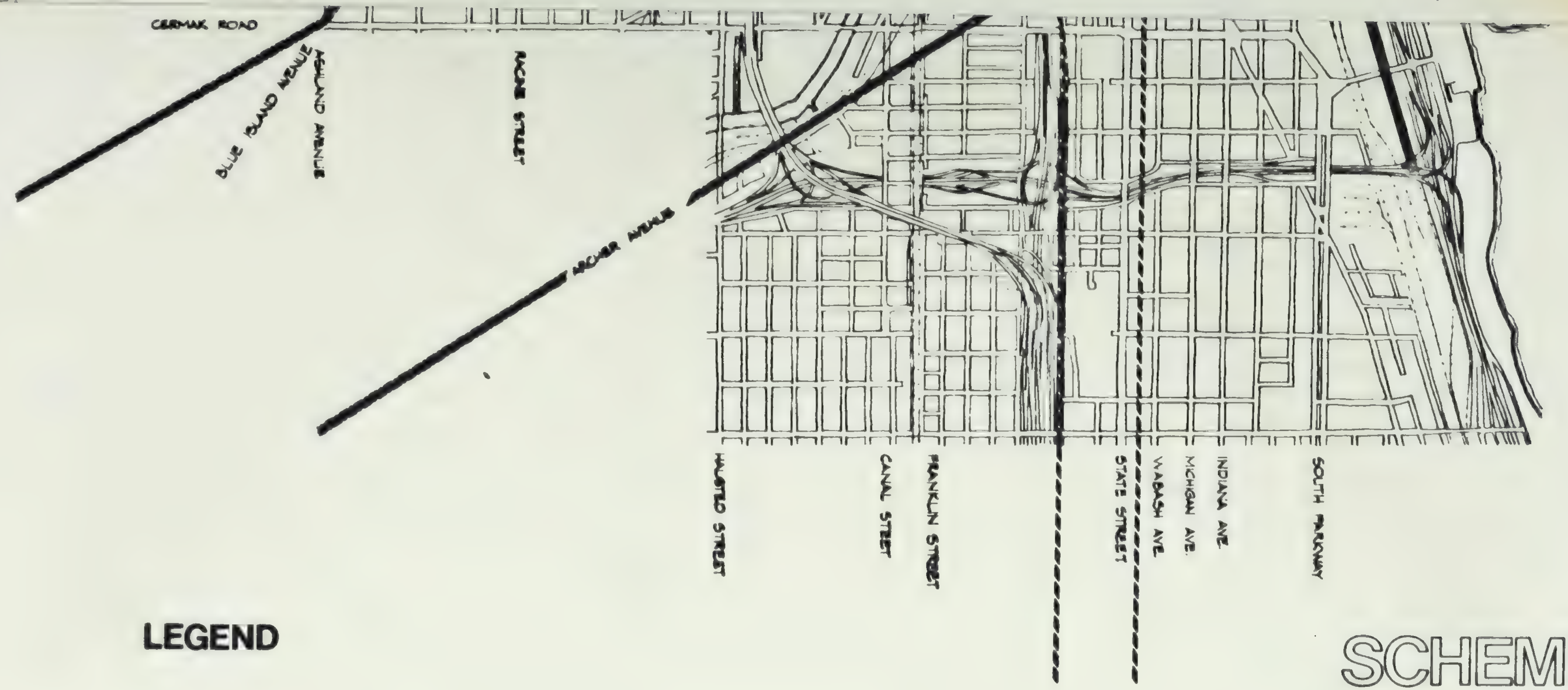
SCHEME 9



LEGEND

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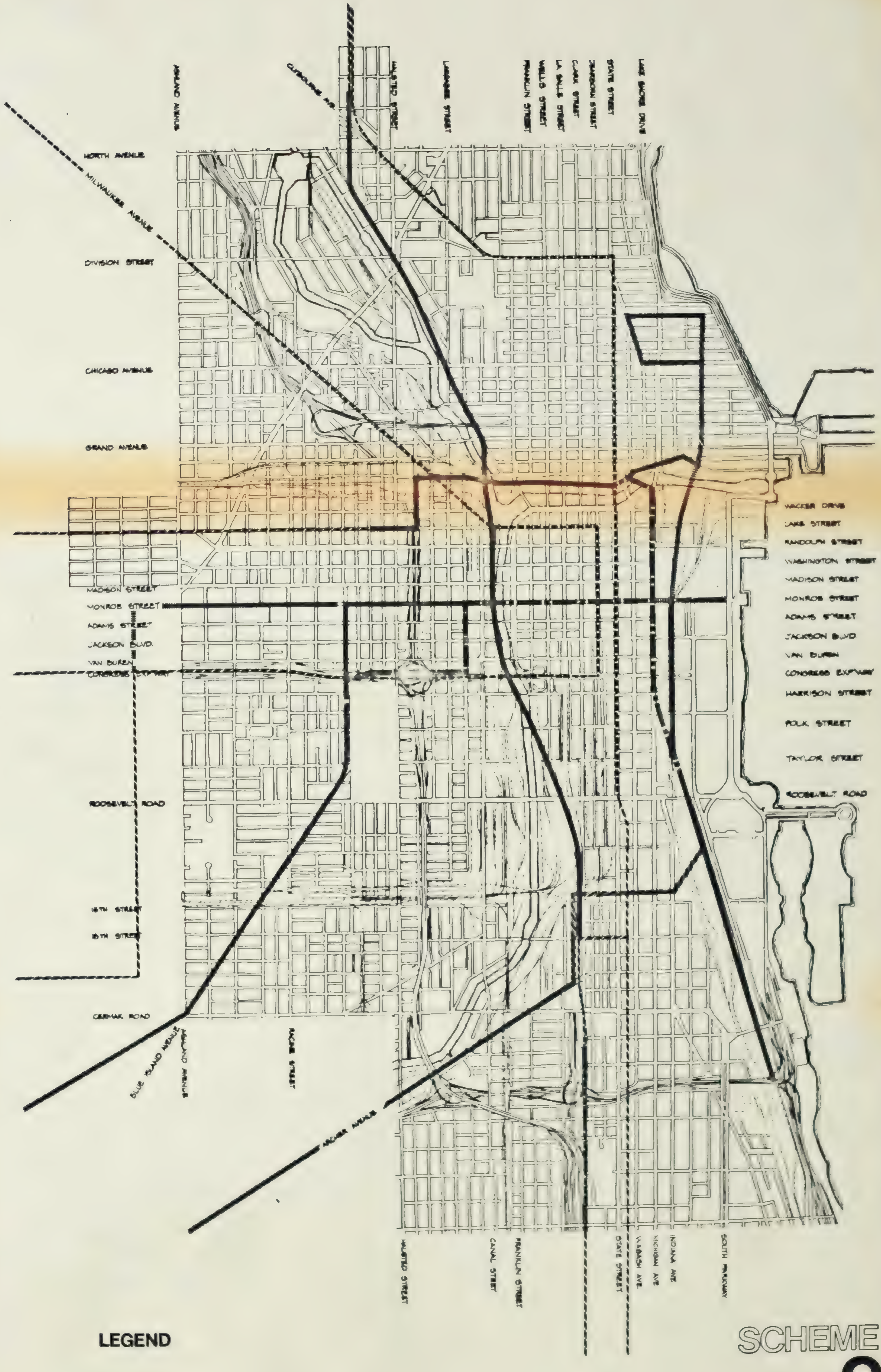

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EXISTING AERIAL	﹏﹏
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NEW AERIAL	▬▬▬
FUTURE ALIGNMENT	▨▨▨
ALTERNATIVE ALIGNMT	▬▬▬

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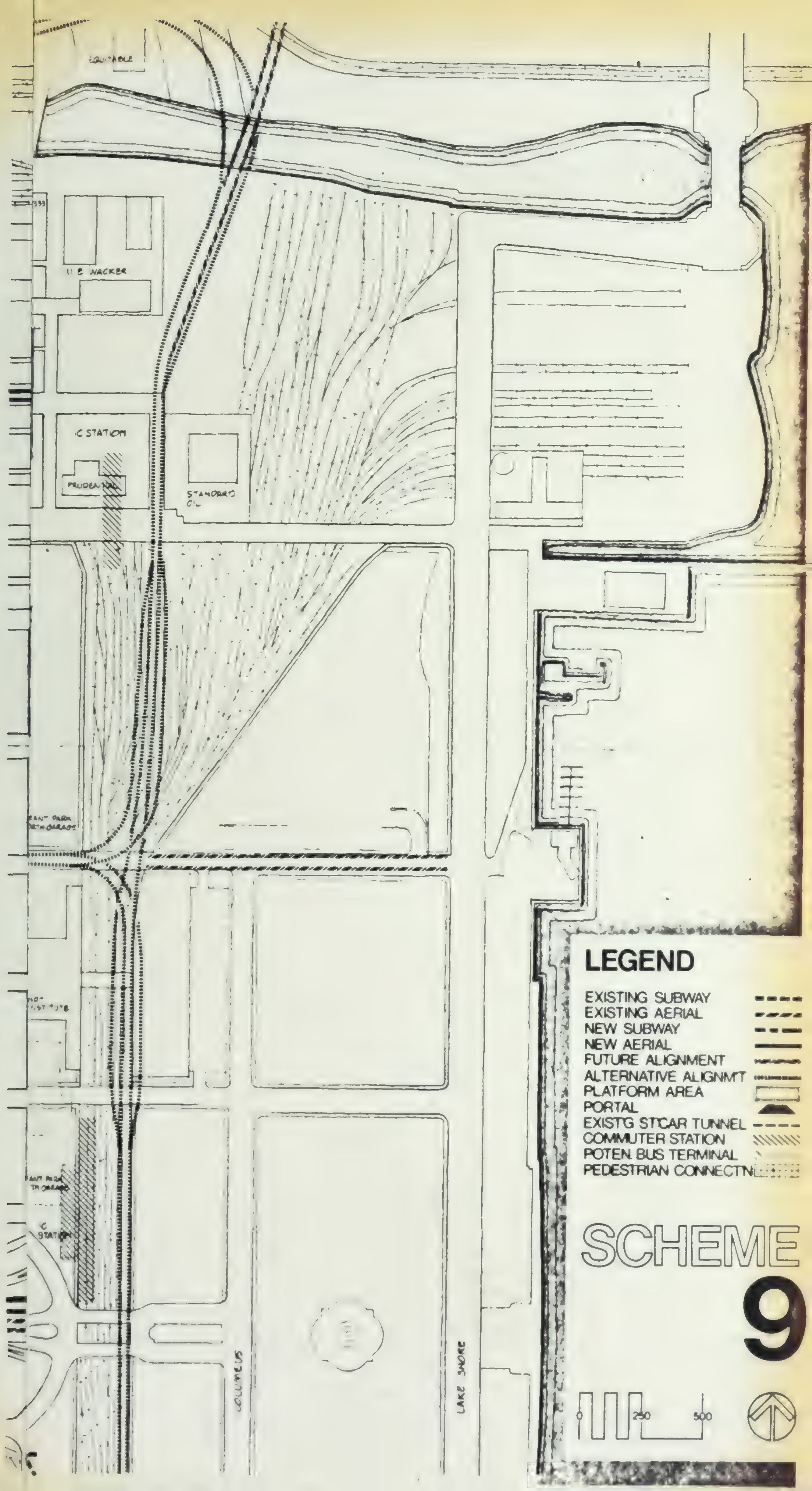
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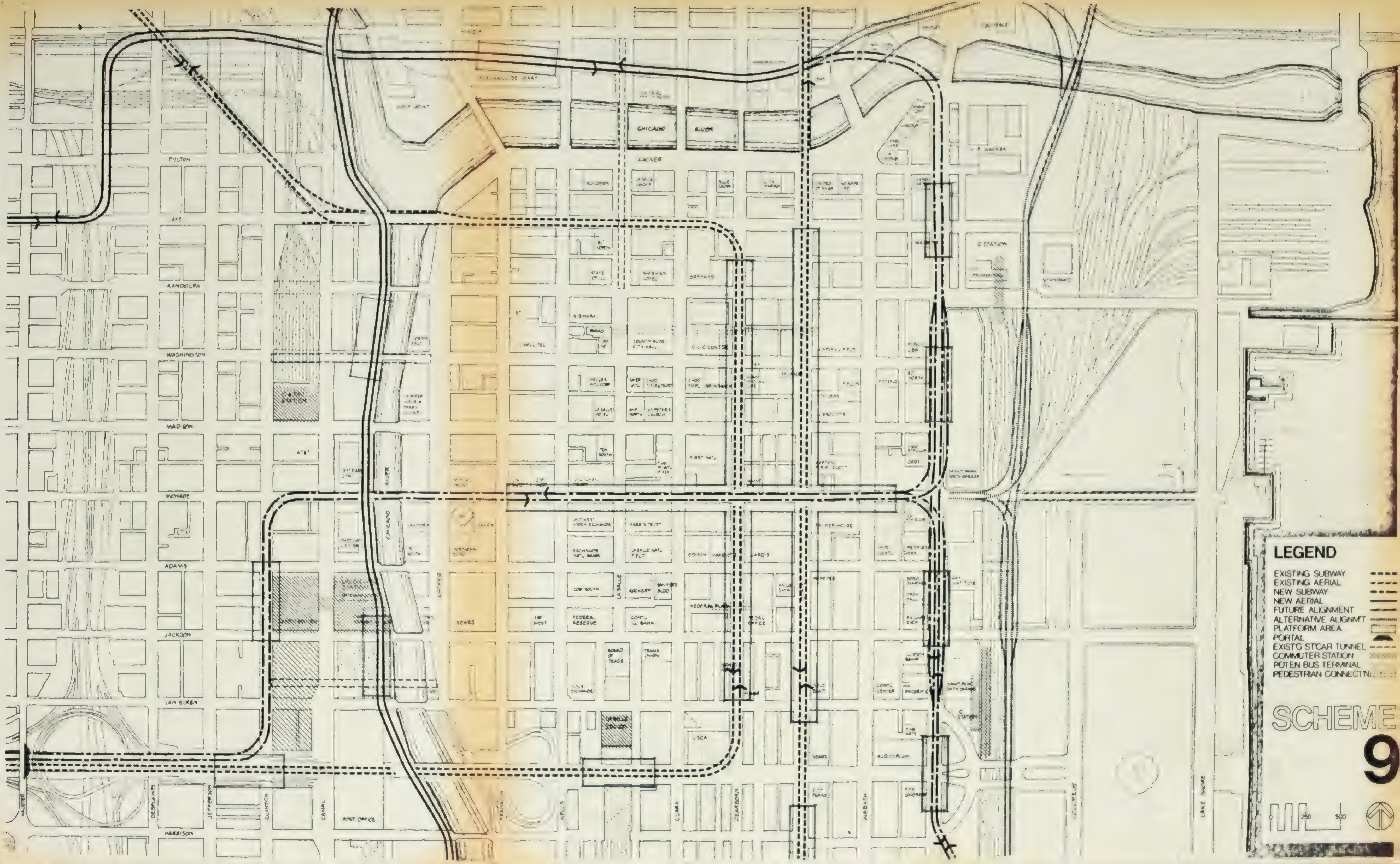
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CHICAGO RIVER
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WASHINGTON
MADISON
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HARRISON
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DESPLAINES
JEFFERSON
CLINTON
CANAL
WACKER
WELLS
LA SALLE
CLARK
DEARBORN
WABASH
COLUMBUS
LAKE SHORE
CHICAGO RIVER
POST OFFICE
SEARS
BOARD OF TRADE
FEDERAL RESERVE
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CIVIC CENTER
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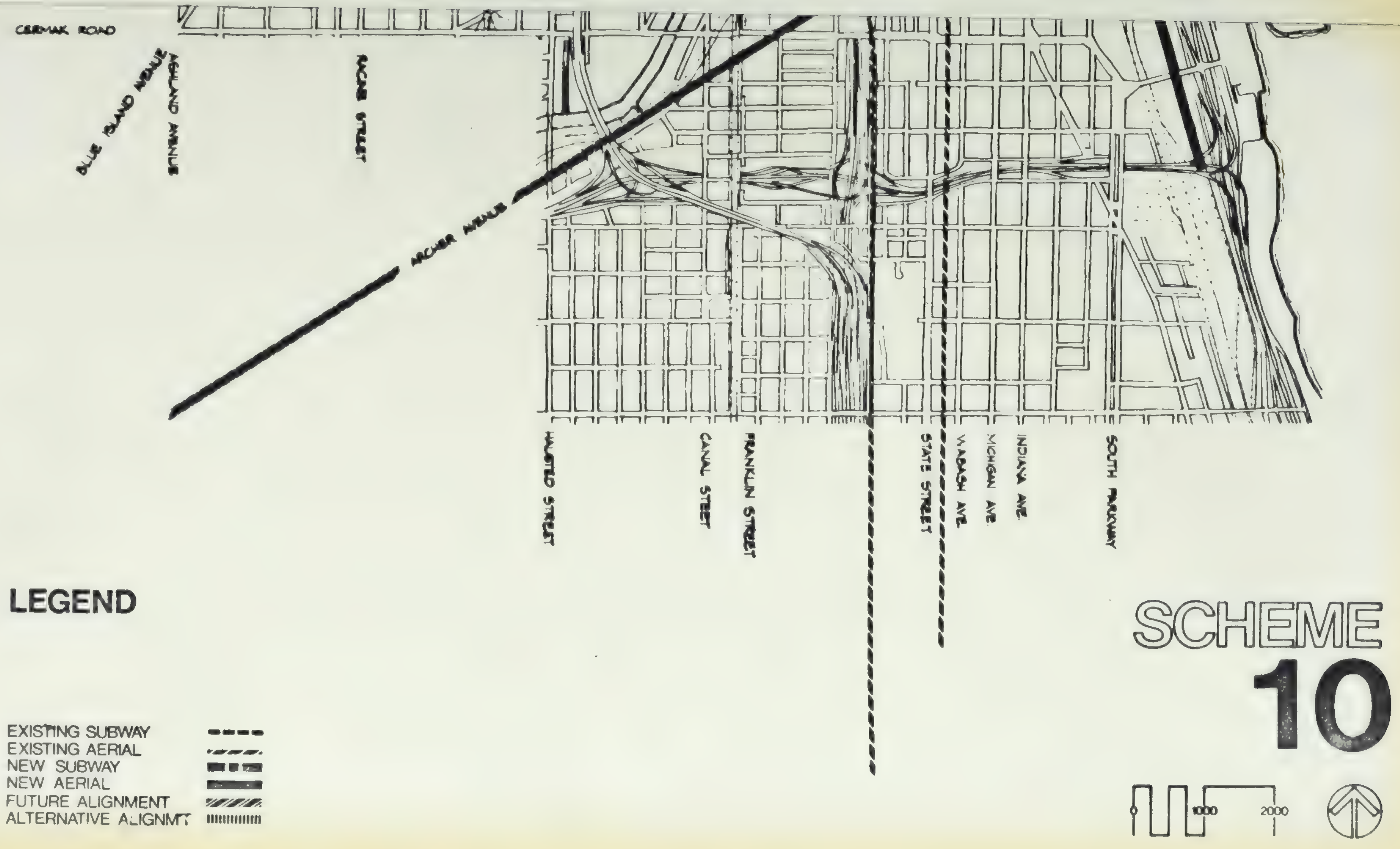
FEDERAL PLAZA
AUDITORIUM
SEARS

SCHEME 10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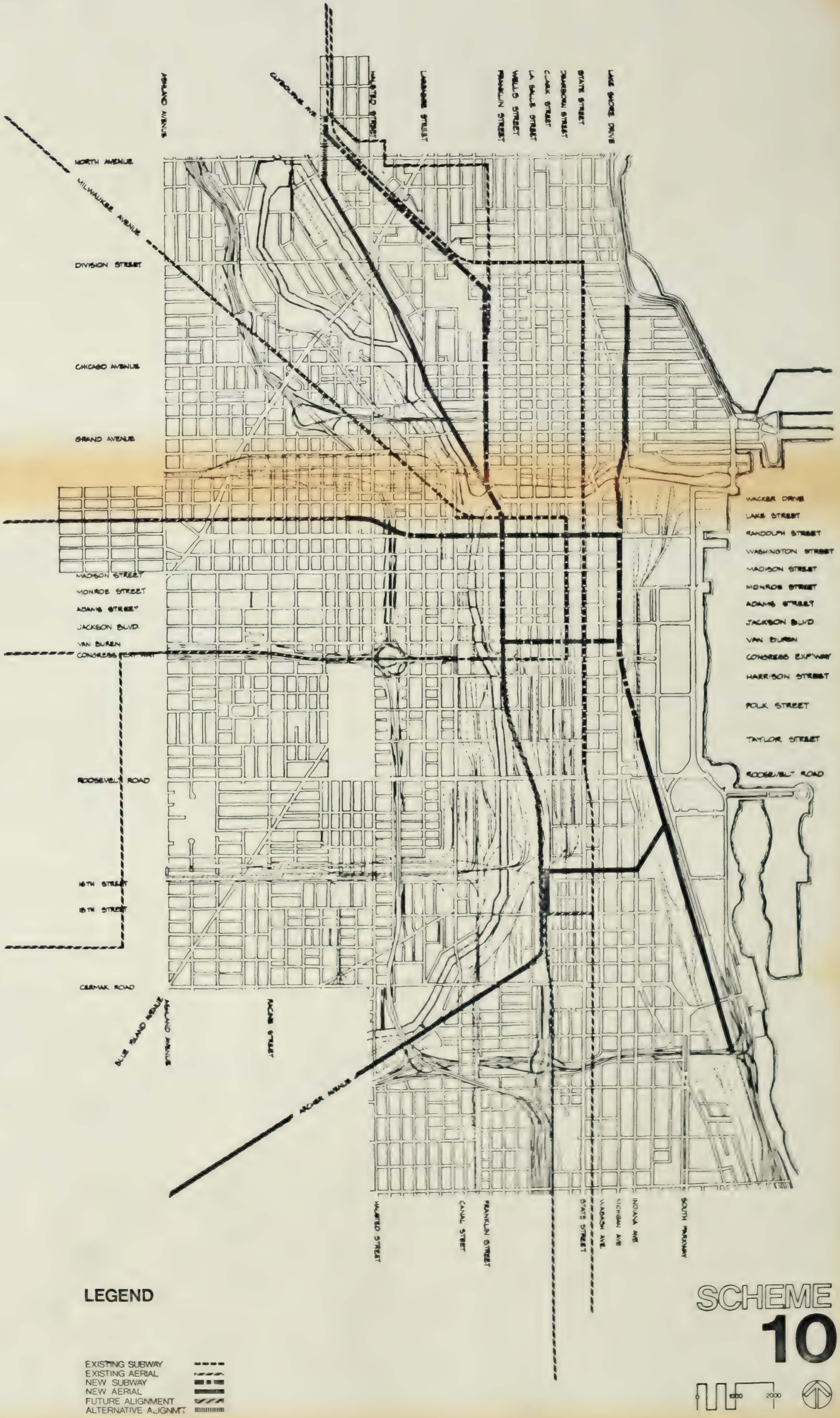
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JACKSON BLVD.
VAN BUREN
CONGRESS EXP'WAY
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JACKSON BLVD
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POLK STREET
TAYLOR STREET
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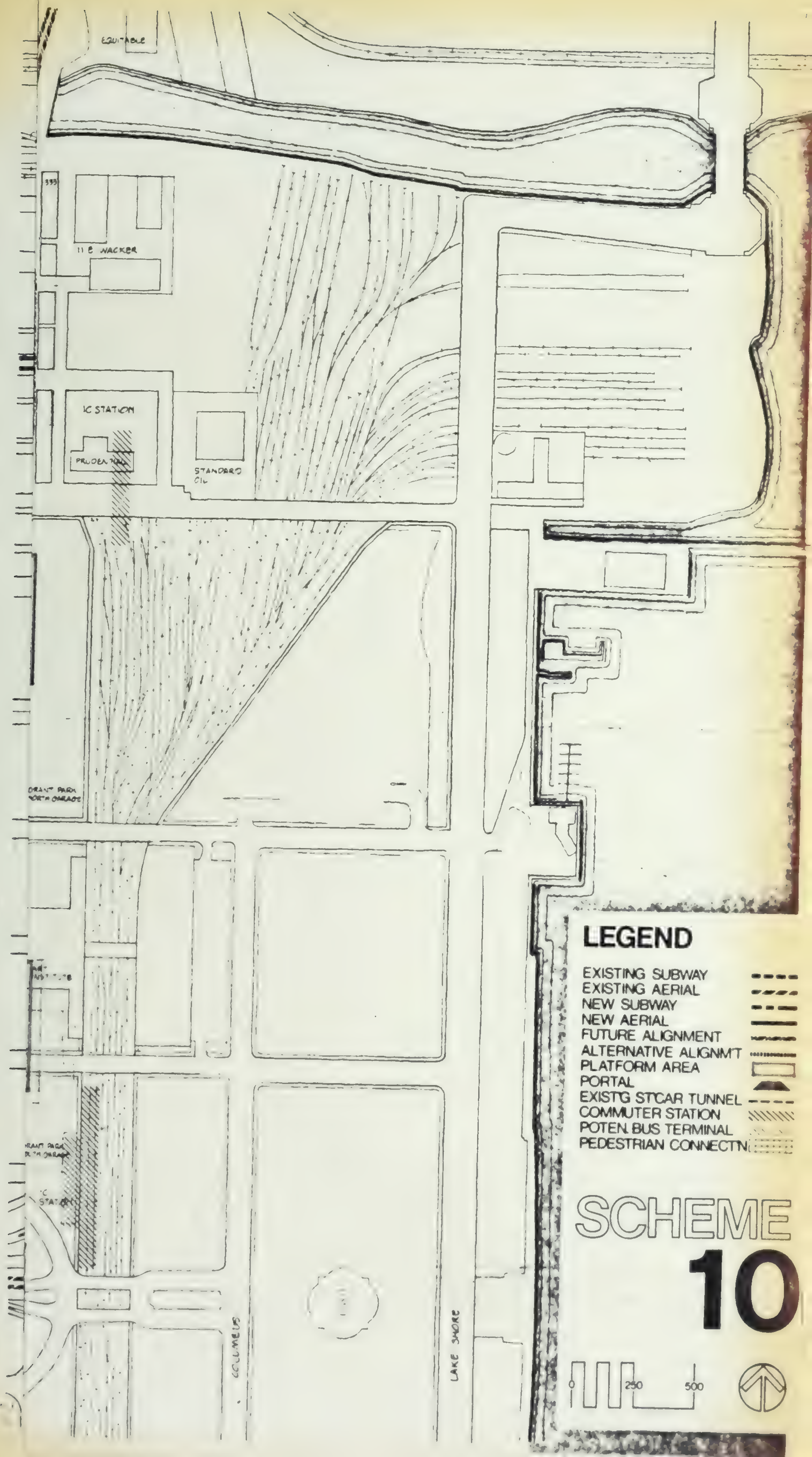
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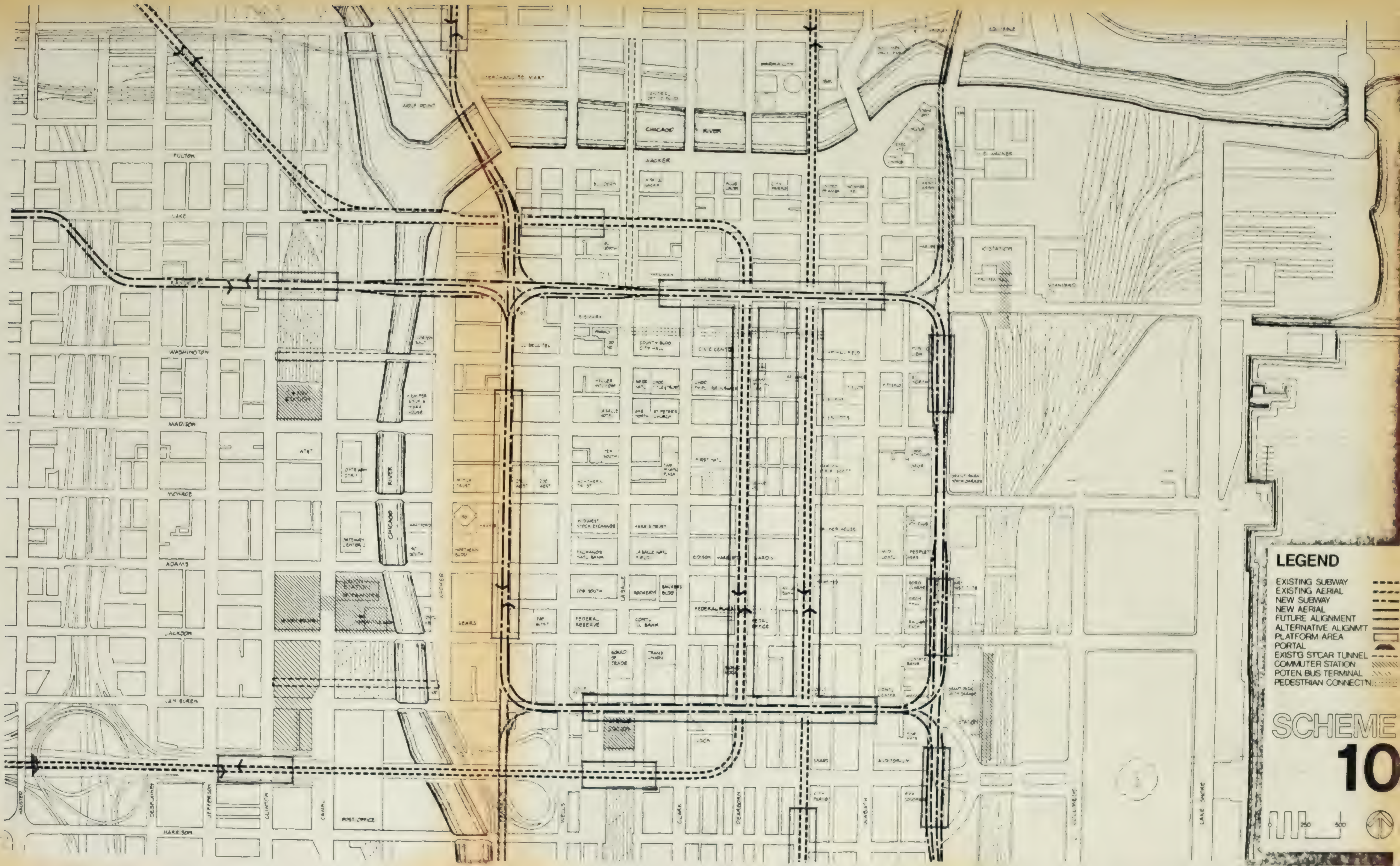
SCHEME 10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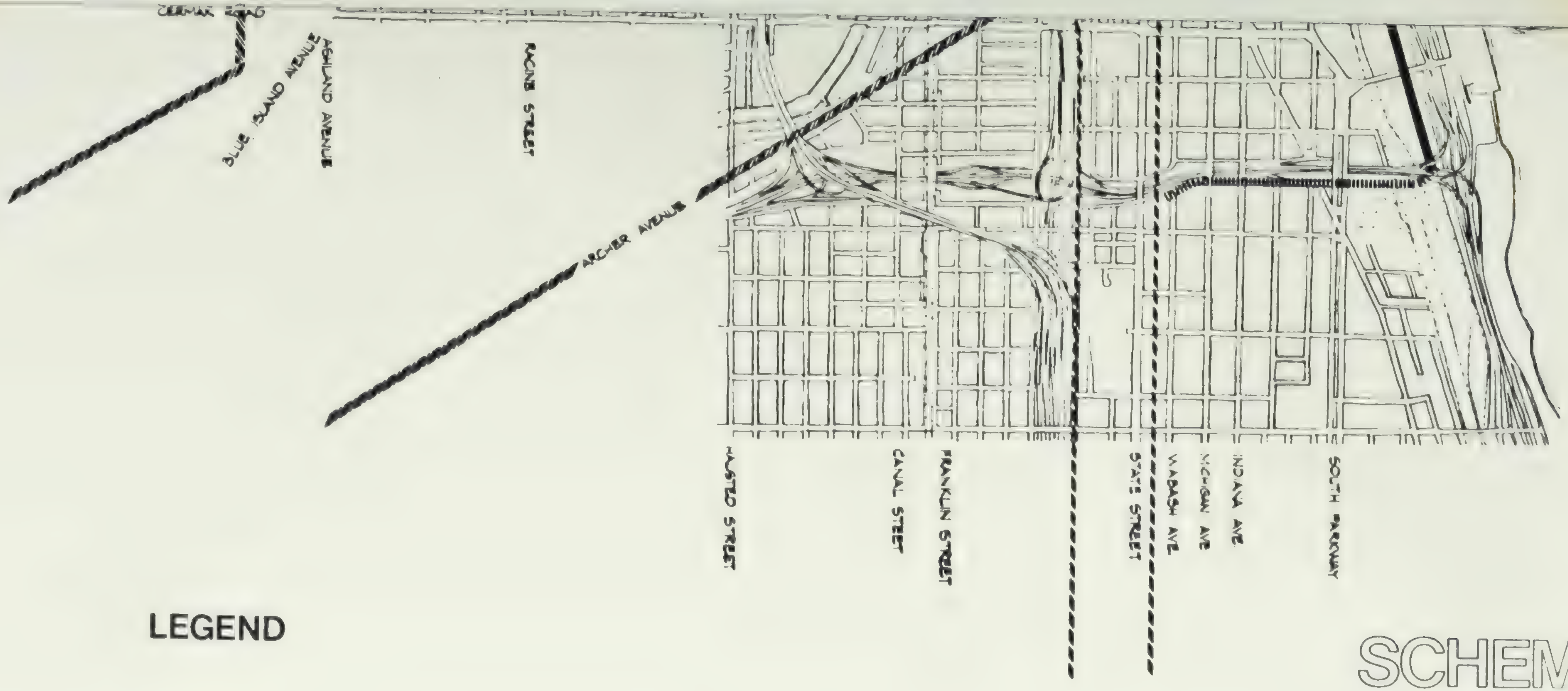

SCHEME 11

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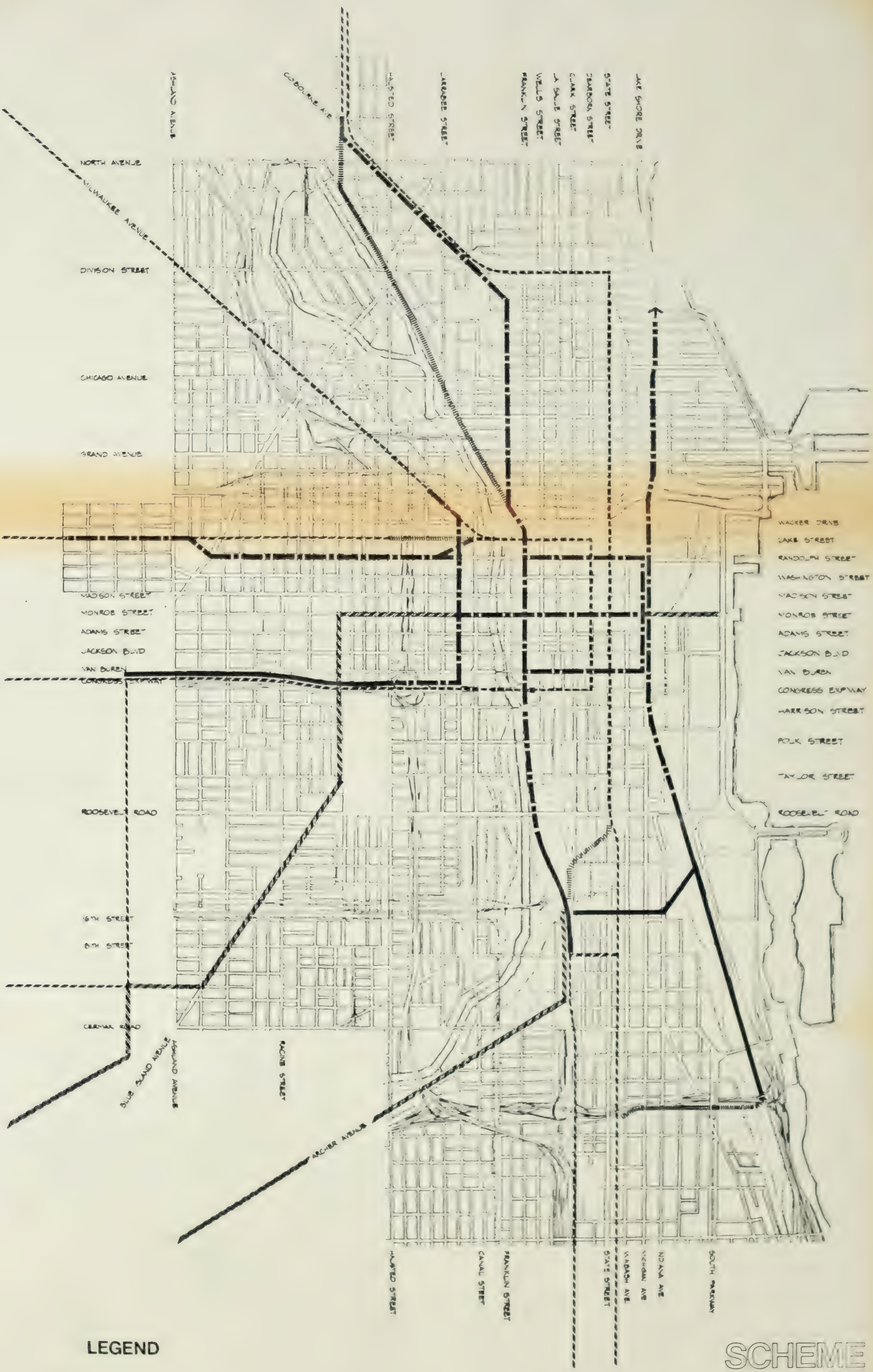

SCHEME 11

LEGEND

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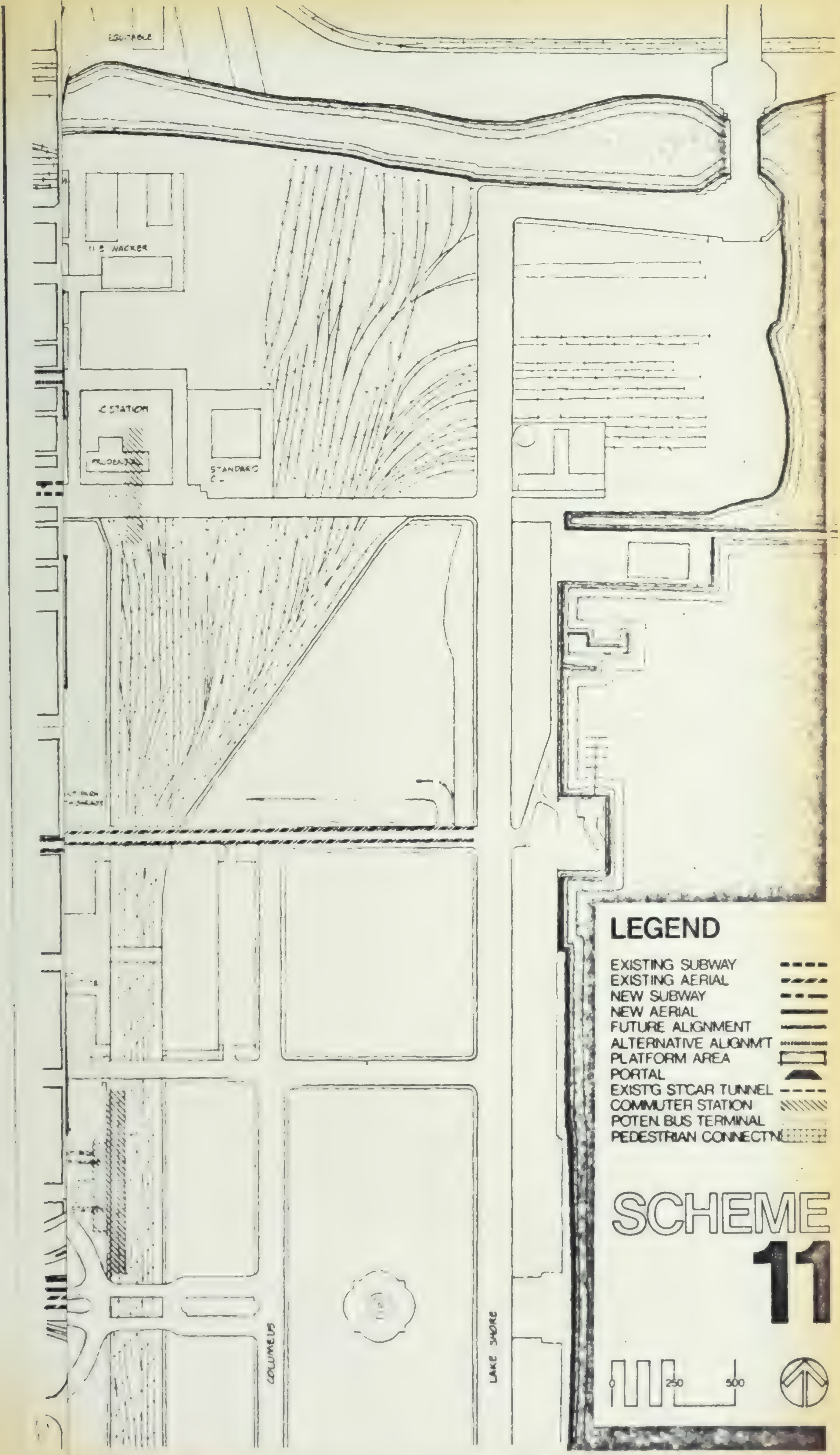
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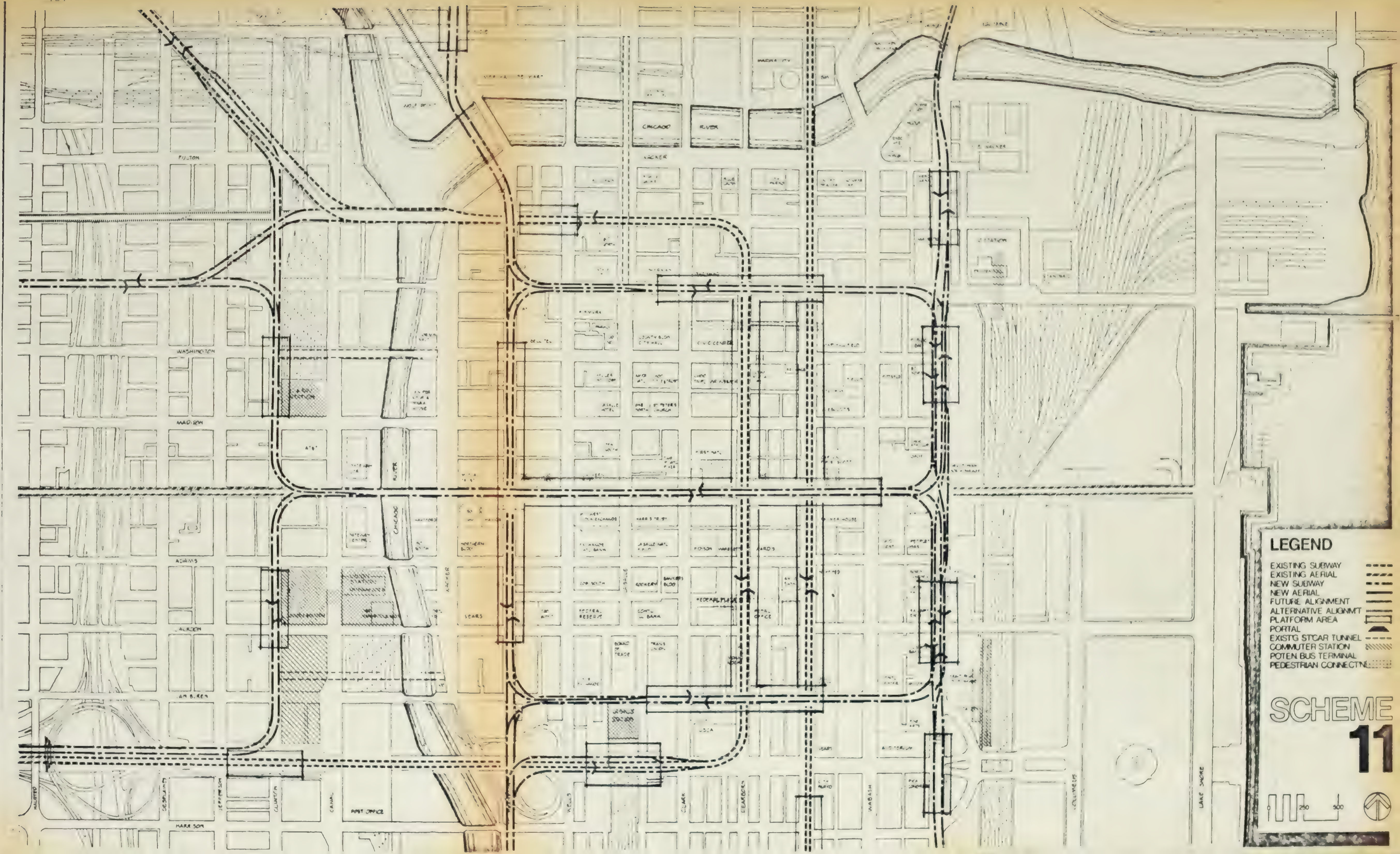
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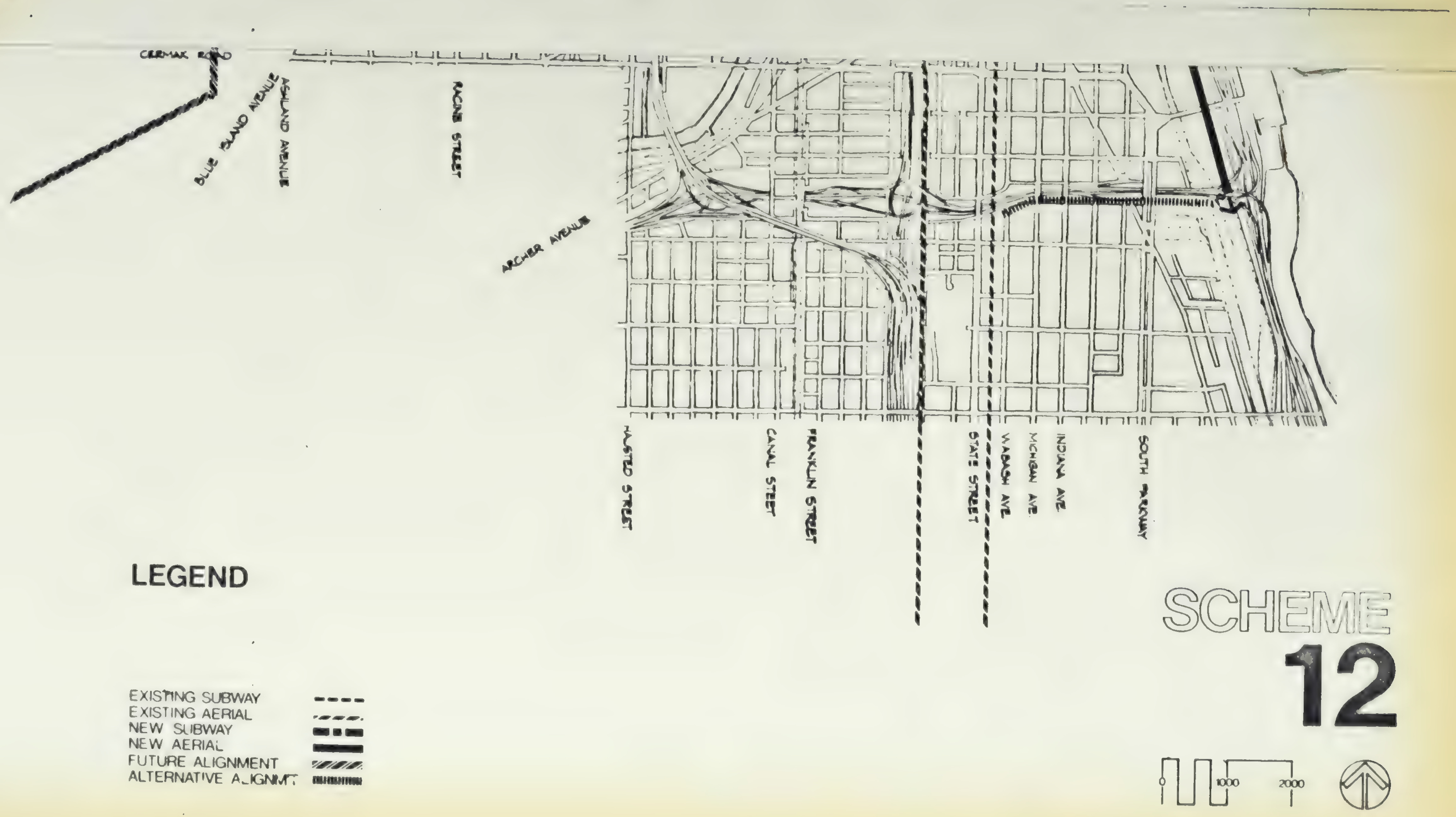
SCHEME 12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CANAL STEET
FRANKLIN STREET
STATE STREET
WABASH AVE.
MICHIGAN AVE.
INDIANA AVE.
SOUTH PARKWAY
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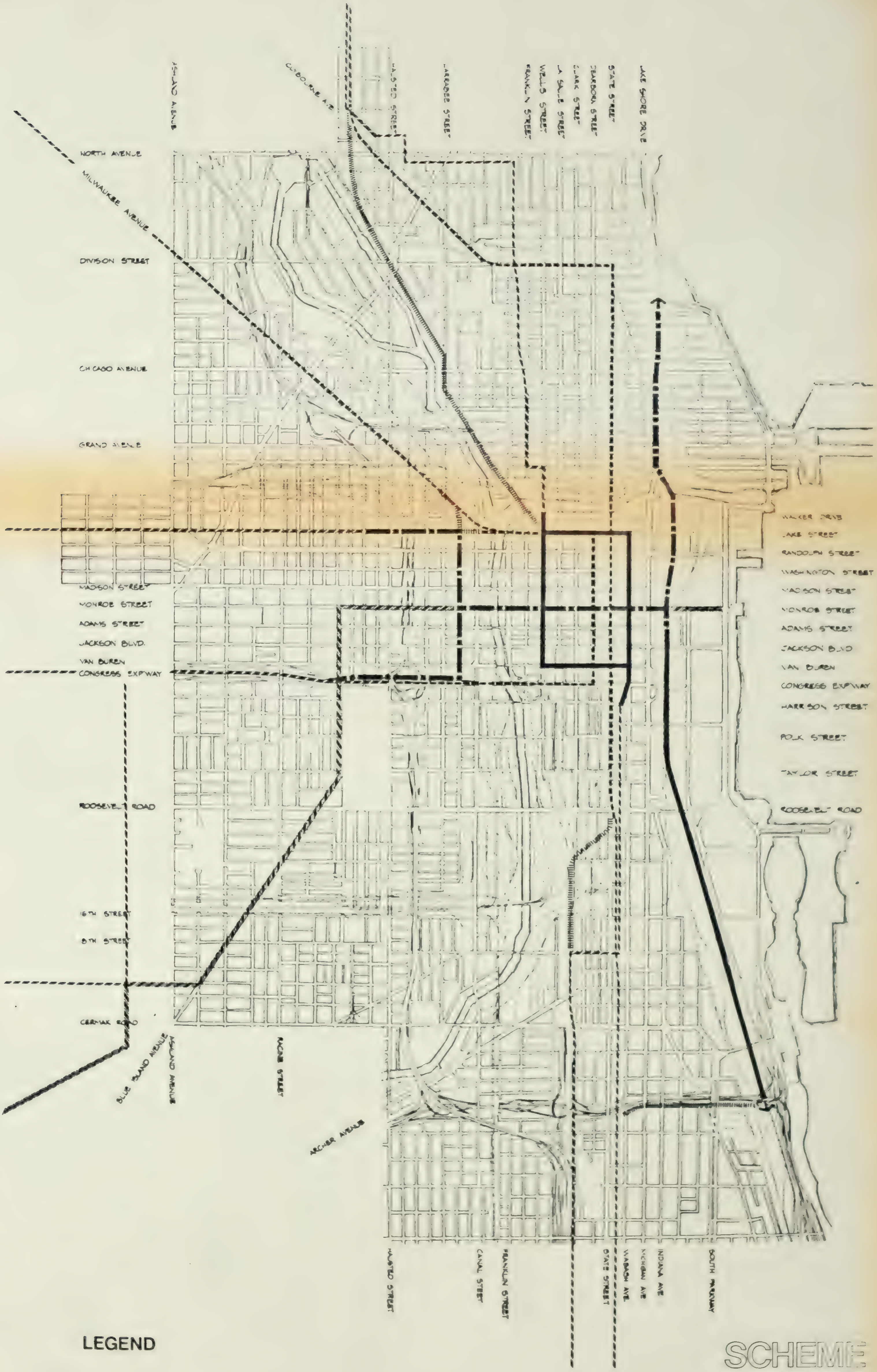

LEGEND

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SCHEME
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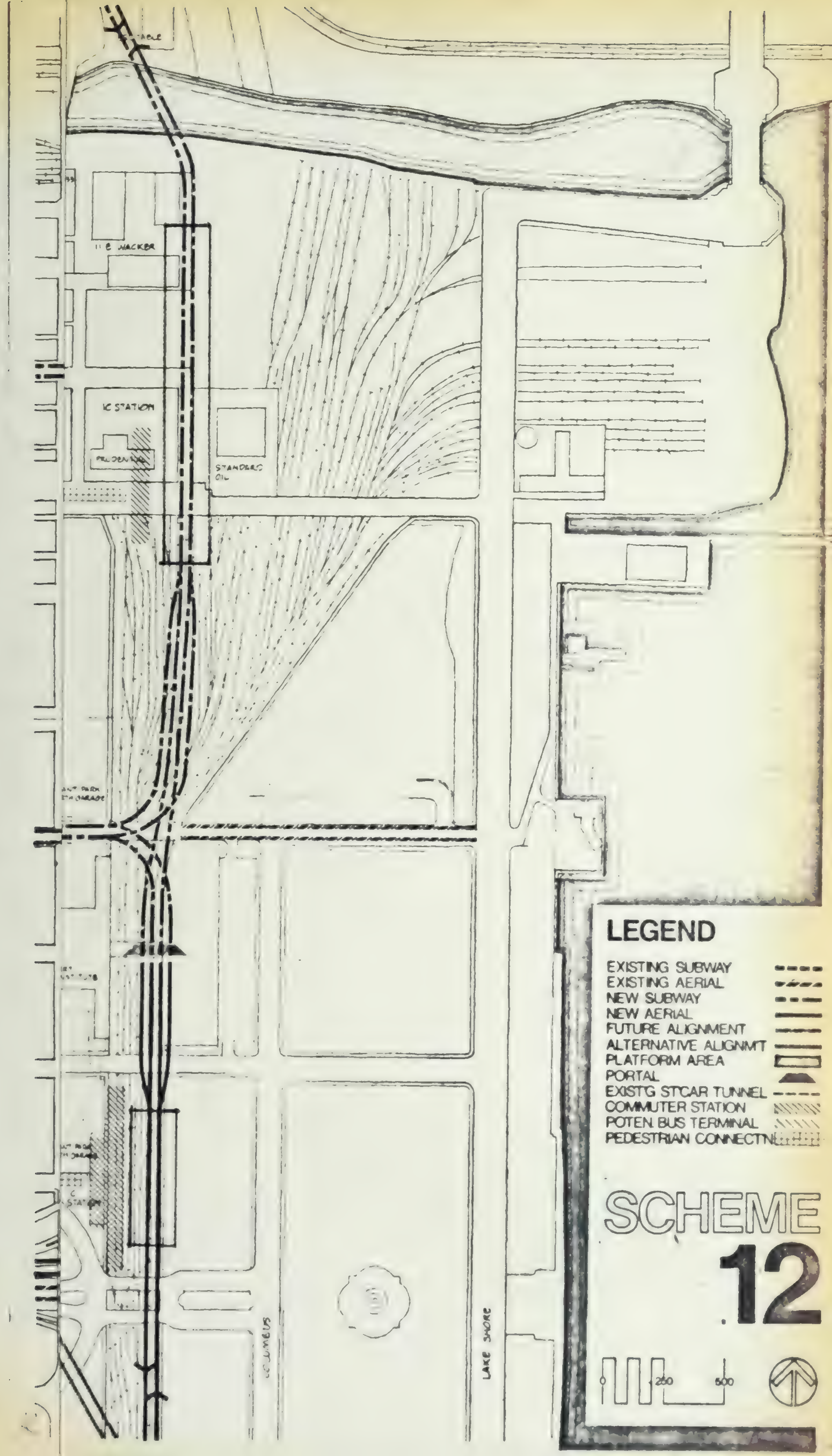

TABLE
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PLATFORM AREA
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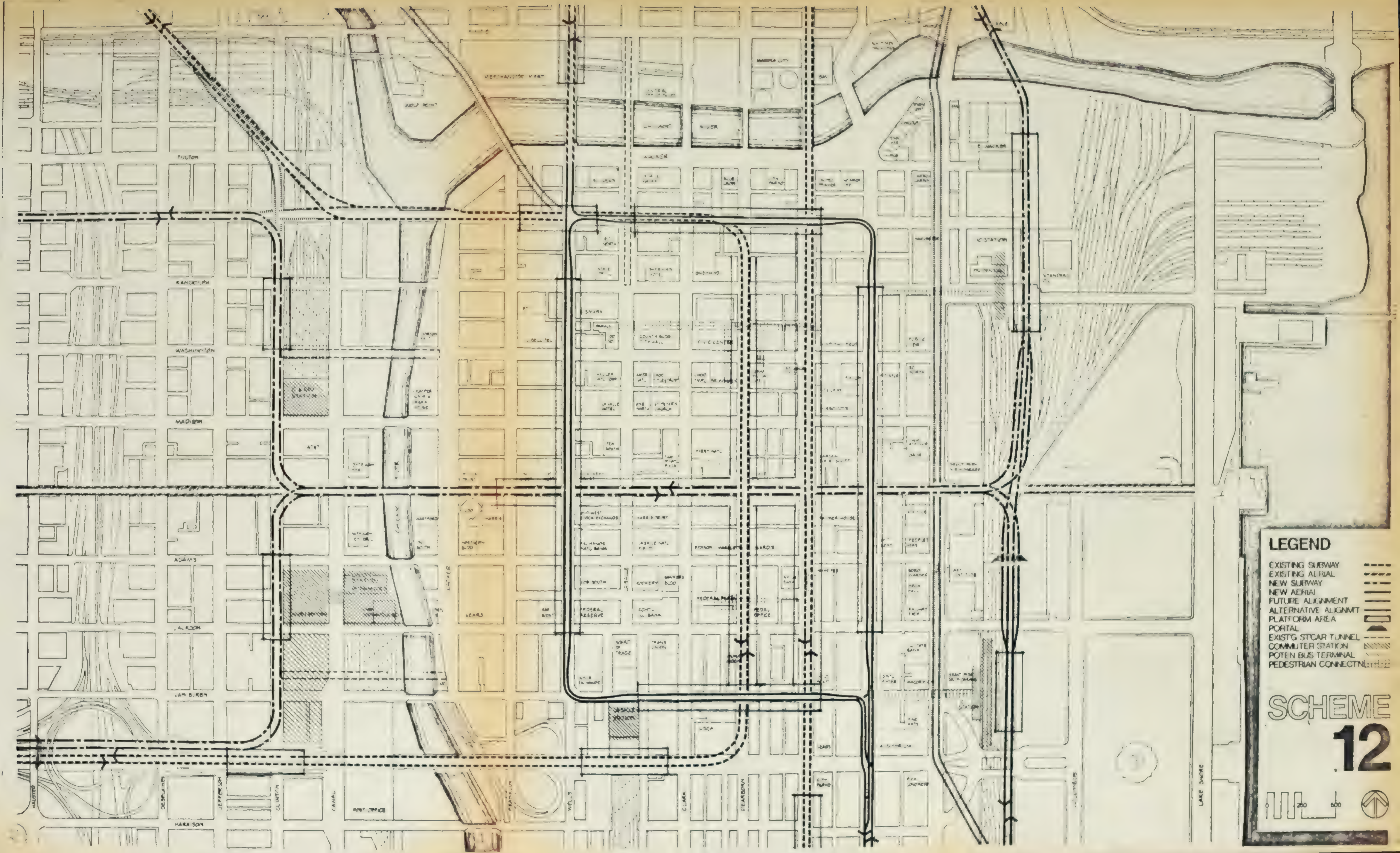
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COUNTY BLDG CITY HALL
CIVIC CENTER
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AUDITORIUM
CITY HALL

APPENDIX 4

EVALUATION OF ALTERNATIVE SCHEMES

Summary charts reflecting the implications of each of the 12 alternative schemes on various components of seven evaluation parameters (service, operations, cost, environment, urban/ architecture design, social factors, and economic factors) are shown in this appendix. Also included is a summary sheet of the composite rating of each of the 12 alternatives with respect to the major evaluation parameters. The rating of each alternative is visually represented by circles in which the amount of shading indicates the contribution toward attainment of the indicated goals and objectives outlined in Section IX. A white circle indicates minimum contribution while a black circle connotes maximum contribution to indicated goals and objectives.

However, it should be recognized that such a chart can only indicate approximate values and that different weights may be placed upon different factors depending upon viewpoint or objective.

ALTERNATIVE EVALUATION CRITERIA

LEGEND

SHADING INDICATES CONTRIBUTION OF ALTERNATIVE TO ATTAINMENT OF INDICATED GOALS AND OBJECTIVES.

○ MINIMUM CONTRIBUTION

● MAXIMUM CONTRIBUTION

ALTERNATIVE CONSIDERED	SERVICE								COMMENTS
	DOWNTOWN ACCESSIBILITY	PATRONAGE	SYSTEM TRANSFER	PASSENGER SECURITY	AVERAGE TRAVEL TIME	PASSENGER CONVENIENCE	FUTURE EXPANSION POTENTIAL	TRANSIT SERVICE TO NEW AREAS	
1. DO NOTHING	◔	◔	◔	○	◔	◔	○	○	CONTINUATION OF PRESENT TRENDS OF DETERIORATING SERVICE IN ALL ELEMENTS LOOP DEVELOPMENT SERIOUSLY SET BACK
2. UPGRADE EXISTING ELEVATED STRUCTURE	◔	◔	◔	◔	◒	◔	○	○	SAFER DUE TO ELIMINATION OF GRADE CROSSING, MODERATE DETERIORATION OF SERVICE FORCAST.
3. ELIMINATE LOOP BUILD EAST WEST DISTRIBUTOR	○	○	○	◒	○	○	◔	◕	SERIOUS CURTAILMENT OF ACCESS TO LOOP. MAJOR FORMS OF DEVELOPMENT WILL SHIFT TO NEAR NORTH SIDE AND PERIPHERY LEAVING LOOP AS A GHOST TOWN.
4. ELIMINATE LOOP BUILD E W DISTRIBUTOR AND N S ROUTE	◒	◒	◒	◕	◒	◒	◕	◕	CURTAILMENT OF ACCESS TO LOOP WOULD HAVE SAME IMPLICATION AS #3; AT MODERATE LEVEL THOUGH.
5. REPLACE LOOP WITH NEW ELEV STRUCTURE	◕	◕	◒	●	◕	◕	◕	◕	DIFFICULTY OF TRANSFER BETWEEN ELEVATED LOOP AND ALL SUBWAY LINES REPRESENT ONLY HANDICAP. DILUTION OF COMMERCIAL DEVELOPMENT EFFORTS BETWEEN UNDERGROUND AND ELEVATED.
6. REPLACE LOOP WITH RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	●	●	●	●	●	●	●	ALL SERVICE ELEMENTS WOULD IMPROVE DRAMATICALLY.
7. REPLACE LOOP WITH WACKER DRIVE GRANT PARK SUBWAY WITH DISTRIBUTOR	◒	◒	◕	◕	◕	◒	◕	●	LIMITATIONS TO ACCESS TO SYSTEM IS A SERIOUS HANDICAP. SCHEME WILL ALSO UPSET COMMUTER'S PATTERN; LONG WALKING DISTANCES FOR SOME
8. REPLACE LOOP WITH MODIFIED RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	●	●	●	●	●	●	●	ALL SERVICE ELEMENTS WOULD IMPROVE DRAMATICALLY.
9. REPLACE LOOP WITH SUBWAY WITH N S LEG WEST OF RIVER	◒	◒	◕	◕	◕	◒	◒	●	DIRECT ACCESSIBILITY TO HEART OF LOOP SERIOUSLY CURTAILED. COMMUTER'S PATTERN UPSET. LONG WALKING DISTANCES FOR MANY NO NET SERVICE IMPROVEMENT EXPECTED.
10. REPLACE LOOP WITH SUBWAY AND ELIMINATE DISTRIBUTOR	◕	◕	●	●	◕	◕	◕	◕	POSSIBLE LIMITATIONS TO FUTURE EXPANSION IS A HANDICAP. QUESTION ABOUT SYSTEM CAPACITY TO HANDLE EXPECTED TRAFFIC VOLUMES.
11. REPLACE LOOP WITH SUBWAY WITH EAST LEG AND DISTRIBUTOR ON MICHIGAN AVE	●	●	●	●	●	●	●	●	ALL SERVICE ELEMENTS WOULD IMPROVE DRAMATICALLY.
12. REPLACE LOOP WITH NEW ELEV STRUCTURE & E W DISTR W/SUBWAY ADDED ON CLINTON	◕	◕	◒	●	◕	◕	◕	◕	DIFFICULTY OF TRANSFER BETWEEN ELEVATED LOOP AND ALL SUBWAY LINES. DILUTION OF COMMERCIAL DEVELOPMENT EFFORTS BETWEEN UNDERGROUND AND ELEVATED.

ALTERNATIVE EVALUATION CRITERIA

LEGEND

SHADING INDICATES CONTRIBUTION OF ALTERNATIVE TO ATTAINMENT OF INDICATED GOALS AND OBJECTIVES.

○ MINIMUM CONTRIBUTION

● MAXIMUM CONTRIBUTION

ALTERNATIVE CONSIDERED	OPERATIONS						COMMENTS
	FLEXIBILITY FOR EXPANSION	SERVICE TO LOOP	INTERFACE WITH STREETS AND VEHICLE TRAFFIC	RESERVE CAPACITY	ELIMINATE LIFT BRIDGE OPERATION	PRESERVE EXISTING TRAIN ROUTINGS	
1. DO NOTHING	○	◕	○	○	○	●	
2. UPGRADE EXISTING ELEVATED STRUCTURE	○	◕	○	◔	○	◒	
3. ELIMINATE LOOP BUILD EAST WEST DISTRIBUTOR	◔	◔	◒		●	○	
4. ELIMINATE LOOP BUILD E W DISTRIBUTOR AND N S ROUTE	◒	◒	◕	◒	●	◔	
5. REPLACE LOOP WITH NEW ELEV STRUCTURE	●	●	◒	●	○	◕	
6. REPLACE LOOP WITH RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	●	●	●	●	●	
7. REPLACE LOOP WITH WACKER DRIVE GRANT PARK SUBWAY WITH DISTRIBUTOR	●	◕	●	●	●	◕	
8. REPLACE LOOP WITH MODIFIED RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	●	●	●	●	◕	
9. REPLACE LOOP WITH SUBWAY WITH N S LEG WEST OF RIVER	◔	◒	◒	◒	○	◔	
10. REPLACE LOOP WITH SUBWAY AND ELIMINATE DISTRIBUTOR	◒	◕	◕	◕	●	◕	
11. REPLACE LOOP WITH SUBWAY WITH EAST LEG AND DISTRIBUTOR ON MICHIGAN AVE	●	●	●	●	●	◕	
12. REPLACE LOOP WITH NEW ELEV. STRUCTURE AND E W DISTRIBUTOR WITH SUBWAY ADDED IN CLINTON	◕	●	◒	◕	○	◕	

ALTERNATIVE EVALUATION CRITERIA

LEGEND

SHADING INDICATES CONTRIBUTION OF ALTERNATIVE TO ATTAINMENT OF INDICATED GOALS AND OBJECTIVES.

○ MINIMUM CONTRIBUTION

● MAXIMUM CONTRIBUTION

ALTERNATIVE CONSIDERED	COST							COMMENTS
	COST							
1. DO NOTHING	●							ZERO
2. UPGRADE EXISTING ELEVATED STRUCTURE	◕							$ 190 (MILLIONS)
3. ELIMINATE LOOP BUILD EAST WEST DISTRIBUTOR	◒							730
4. ELIMINATE LOOP BUILD E W DISTRIBUTOR AND N S ROUTE	◔							1,290
5. REPLACE LOOP WITH NEW ELEV STRUCTURE	◒							910
6. REPLACE LOOP WITH RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	◔							1,550
7. REPLACE LOOP WITH WACKER DRIVE GRANT PARK SUBWAY WITH DISTRIBUTOR	◔							1,700
8. REPLACE LOOP WITH MODIFIED RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	◔							1,500
9. REPLACE LOOP WITH SUBWAY WITH N S LEG WEST OF RIVER	◒							820
10. REPLACE LOOP WITH SUBWAY AND ELIMINATE DISTRIBUTOR	◒							1,016
11. REPLACE LOOP WITH SUBWAY WITH EAST LEG AND DISTRIBUTOR ON MICHIGAN AVE	○							1,715
12. REPLACE LOOP WITH NEW ELEV STRUCTURE & E W DISTR W/SUBWAY ADDED ON CLINTON	◒							[illegible]

ALTERNATIVE EVALUATION CRITERIA

LEGEND

SHADING INDICATES CONTRIBUTION OF ALTERNATIVE TO ATTAINMENT OF INDICATED GOALS AND OBJECTIVES.

○ MINIMUM CONTRIBUTION

● MAXIMUM CONTRIBUTION

ALTERNATIVE CONSIDERED	ENVIRONMENT					COMMENTS
	NOISE AND VIBRATION	DISRUPTION DUE TO CONSTRUCTION	DISRUPTION OF HISTORICAL AND CULTURAL SITES	AIR POLLUTION	ENERGY CONSUMPTION	
1. DO NOTHING	○	●	●	◔	◔	-AIR POLLUTION,NOISE AND ENERGY CONSUMPTION PROBLEMS WILL WORSEN AS MAINTENANCE OF TRANSIT STATUS QUO LEADS TO INCREASING AUTO USE -NO DISRUPTION OF NEIGHBORHOODS
2. UPGRADE EXISTING ELEVATED STRUCTURE	○	◕	●	◔	◔	-MINOR SOLID WASTE DISPOSAL PROBLEMS MAY ARISE -SAFETY OF SYSTEM IMPROVED BY GRADE SEPARATION -AIR POLLUTION,NOISE AND ENERGY COMSUMPTION PROBLEMS WILL WORSEN AS A RESULT OF INCREASED AUTO USE IN THE ABSENCE OF IMPROVED TRANSIT SERVICE -MINOR DISRUPTION POSSIBLE DURING MODIFICATION -ELEVATED SYSTEM NOISE LEVELS MAY BE REDUCED
3. ELIMINATE LOOP BUILD EAST WEST DISTRIBUTOR	◕	◒	●	○	○	-SOLID WASTE (SPOIL DISPOSAL) PROBLEM WITH ASSOCIATED WATER QUALITY AND ECOLOGICAL PROBLEMS -ELEVATED NOISE ELIMINATED
4. ELIMINATE LOOP BUILD E W DISTRIBUTOR AND N S ROUTE	◕	◒	●	◒	◒	SAME AS ALTERNATIVE 3
5. REPLACE LOOP WITH NEW ELEV STRUCTURE	◕	◒	●	◕	◕	-VISUAL IMPACT PROBLEMS -LESS NOISE REDUCTION THAN SUBWAY ALTERNATIVES -MINIMAL SOLID WASTE DISPOSAL PROBLEMS
6. REPLACE LOOP WITH RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	○	●	●	●	-SOLID WASTE (SPOIL DISPOSAL) PROBLEM WITH ASSOCIATED WATER QUALITY AND ECOLOGICAL PROBLEMS -ELEVATED NOISE ELIMINATED
7. REPLACE LOOP WITH WACKER DRIVE GRANT PARK SUBWAY WITH DISTRIBUTOR	●	○	●	◕	◕	SAME AS ALTERNATIVE 6
8. REPLACE LOOP WITH MODIFIED RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	○	●	●	●	SAME AS ALTERNATIVE 6
9. REPLACE LOOP WITH SUBWAY WITH N S LEG WEST OF RIVER	●	◔	●	◒	◒	SAME AS ALTERNATIVE 6
10. REPLACE LOOP WITH SUBWAY AND ELIMINATE DISTRIBUTOR	◕	◔	●	◕	◕	SAME AS ALTERNATIVE 6
11. REPLACE LOOP WITH SUBWAY WITH EAST LEG AND DISTRIBUTOR ON MICHIGAN AVE	●	○	●	●	●	SAME AS ALTERNATIVE 6
12. REPLACE LOOP WITH NEW ELEV STRUCTURE & E W DISTR W/SUBWAY ADDED ON CLINTON	◕	◔	●	◕	◕	SAME AS ALTERNATIVE 5

ALTERNATIVE EVALUATION CRITERIA

LEGEND

SHADING INDICATES CONTRIBUTION OF ALTERNATIVE TO ATTAINMENT OF INDICATED GOALS AND OBJECTIVES.

○ MINIMUM CONTRIBUTION

● MAXIMUM CONTRIBUTION

URBAN / ARCHITECTURE DESIGN

ALTERNATIVE CONSIDERED	IMPROVED STATION FUNCTION AND APPEARANCE	DEFINES LOOP	PATRON ORIENTATION WITHIN CBD	APPROPRIATE ARRIVAL / DEP WITHIN CBD	VISIBLE AND IMMEDIATE URBAN DESIGN BENEFIT	LONG RANGE DEVELOPMENT OPPORTUNITY	BENEFIT TO GROUND LEVEL PUBLIC SECTOR	RELATED TO EXISTING PLANS (CHICAGO 21) AND RECENT DEVELOPME	BENEFITS PEDESTRIAN CIRCULATION	COMMENTS
1. DO NOTHING	○	○	●	●	○	◔	○	○	○	
2. UPGRADE EXISTING ELEVATED STRUCTURE	◔	○	●	●	◔	◔	○	○	○	
3. ELIMINATE LOOP BUILD EAST WEST DISTRIBUTOR	●	◔	○	◔	◔	◔	◒	◔	◔	
4. ELIMINATE LOOP BUILD E W DISTRIBUTOR AND N S ROUTE	●	◒	○	◒	◔	◒	◒	◔	◔	
5. REPLACE LOOP WITH NEW ELEV STRUCTURE	●	◕	●	●	●	●	●	◔	●	
6. REPLACE LOOP WITH RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	◕	◕	◕	◕	●	◕	●	◕	
7. REPLACE LOOP WITH WACKER DRIVE GRANT PARK SUBWAY WITH DISTRIBUTOR	●	◒	◒	◒	◒	◕	◒	◔	◕	
8. REPLACE LOOP WITH MODIFIED RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	◒	◕	◕	◕	●	◕	◕	◕	
9. REPLACE LOOP WITH SUBWAY WITH N S LEG WEST OF RIVER	●	◔	◔	◔	◔	◔	◔	◔	◔	
10. REPLACE LOOP WITH SUBWAY AND ELIMINATE DISTRIBUTOR	●	●	◒	◕	◒	◕	◒	◒	◒	
11. REPLACE LOOP WITH SUBWAY WITH EAST LEG AND DISTRIBUTOR ON MICHIGAN AVE	●	◕	◕	◕	●	●	◕	◕	◕	
12. REPLACE LOOP WITH NEW ELEV STRUCTURE & E W DISTR W/SUBWAY ADDED ON CLINTON	●	●	●	●	●	●	●	◔	●	

ALTERNATIVE EVALUATION CRITERIA

LEGEND

SHADING INDICATES CONTRIBUTION OF ALTERNATIVE TO ATTAINMENT OF INDICATED GOALS AND OBJECTIVES.

○ MINIMUM CONTRIBUTION

● MAXIMUM CONTRIBUTION

ALTERNATIVE CONSIDERED	SOCIAL FACTORS						COMMENTS
	ACCESSIBILITY TO JOBS & SERVICES	SAFETY & SECURITY	COMPATIBILITY WITH CURRENT PLANNING	POTENTIAL FOR JOINT DEVELOPMENT	FLEXIBILITY	SOCIAL CONSEQUENCES	
1. DO NOTHING	○	○	○	○	○	○	PRESENT DEFICIENCIES REMAIN
2. UPGRADE EXISTING ELEVATED STRUCTURE	◔	◔	○	○	◔	○	IMPROVEMENTS IN STATION FACILITIES COULD MAKE TRANSFERS EASIER AND ENHANCE SECURITY
3. ELIMINATE LOOP BUILD EAST WEST DISTRIBUTOR	◑	◑	◔	○	◔	◑	CIRCUITOUS CONNECTION BETWEEN CABRINI-GREEN AREA AND DOWNTOWN. MINIMAL DISRUPTION IN CORE.
4. ELIMINATE LOOP BUILD E W DISTRIBUTOR AND N S ROUTE	◑	◕	◑	◔	◔	◕	MINIMAL DISRUPTION IN CORE
5. REPLACE LOOP WITH NEW ELEV STRUCTURE	◕	◑	◔	◑	◑	○	COUNTER TO MAJORITY EXPECTATIONS
6. REPLACE LOOP WITH RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	◕	●	●	◕	●	
7. REPLACE LOOP WITH WACKER DRIVE GRANT PARK SUBWAY WITH DISTRIBUTOR	◕	◑	◑	◕	◕	◕	STATION SECURITY PROBLEMS UNDER WACKER DR. AND MICHIGAN
8. REPLACE LOOP WITH MODIFIED RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	◕	●	◕	●	◕	ELIMINATION OF PEDESTRIAN WALKWAYS UNDER STATE STREET RETENTION OF HALSTED-WALCOTT SECTION OF LAKE ST. ELEVATED.
9. REPLACE LOOP WITH SUBWAY WITH N S LEG WEST OF RIVER	◕	◕	◔	◕	◕	◕	RAVENSWOOD ALIGNMENT WILL IMPEDE RIVERFRONT DEVELOPMENT.
10. REPLACE LOOP WITH SUBWAY AND ELIMINATE DISTRIBUTOR	◑	◔	◑	◑	◕	◑	ABSENCE OF DISTRIBUTOR WILL LIMIT ACCESS TO NEAR NORTH JOBS AND SERVICES.
11. REPLACE LOOP WITH SUBWAY WITH EAST LEG AND DISTRIBUTOR ON MICHIGAN AVE	◕	◕	◑	◕	●	◕	DISTRIBUTOR SERVES COMMERCIAL FUNCTIONS BETTER THAN SOCIAL FUNCTIONS IN NEAR NORTH AREA
12. REPLACE LOOP WITH NEW ELEV STRUCTURE & E W DISTR W/SUBWAY ADDED ON CLINTON	◕	◕	◔	◑	◑	○	COUNTER TO MAJORITY EXPECTATIONS.

ALTERNATIVE EVALUATION CRITERIA

LEGEND

SHADING INDICATES CONTRIBUTION OF ALTERNATIVE TO ATTAINMENT OF INDICATED GOALS AND OBJECTIVES.

○ MINIMUM CONTRIBUTION

● MAXIMUM CONTRIBUTION

ECONOMIC FACTORS

ALTERNATIVE CONSIDERED	OFFICE SPACE	LAND VALUES	RETAIL SALES	HOTELS	RESIDENTIAL	COMMENTS
1. DO NOTHING	◔	◔	◔	◔	◒	FUTURE COMMERCIAL AND RESIDENTIAL REDEVELOPMENT OF THE CENTRAL AREA WOULD BE SEVERELY CONSTRAINED BY THE DO NOTHING ALTERNATIVE
2. UPGRADE EXISTING ELEVATED STRUCTURE	◔	◔	◔	◔	◒	THE OPERATIONAL IMPROVEMENTS THAT ARE INCLUDED IN THIS ALTERNATIVE WOULD NOT PRODUCE ANY MEASUREABLE DEVELOPMENT GAINS TO THE CENTRAL AREA
3. ELIMINATE LOOP BUILD EAST WEST DISTRIBUTOR	◒	◒	◒	◕	◒	THIS ALTERNATIVE WOULD PRIMARILY ENHANCE THE COMMERCIAL DEVELOPMENT POTENTIAL OF MICHIGAN AVENUE THE BLIGHTING ECONOMIC INFLUENCE OF THE EXISTING EL SYSTEM WOULD BE ELIMINATED. THE ONLY MEASUREABLE LAND USE CHANGES THAT WOULD OCCUR RELATE TO HOTEL DEVELOPMENT.
4. ELIMINATE LOOP BUILD E W DISTRIBUTOR AND N S ROUTE	◕	◕	◒	◕	◕	COMMERCIAL OFFICE CONSTRUCTION ACTIVELY WOULD BE INDUCED BY THIS ALTERNATIVE ALONG FRANKLIN STREET. RELATED INCREASES IN RETAIL SALES REVENUES WOULD BE SLIGHTLY HIGHER THAN ALTERNATIVE 3. ADDITIONAL IMPETUS WOULD ALSO BE GIVEN TO RESIDENTIAL DEVELOPMENT IN THE CANAL STREET AREA.
5. REPLACE LOOP WITH NEW ELEV STRUCTURE	◒	◒	◒	◕	◒	THE POTENTIAL RETAIL GALLERIAS ASSOCIATED WITH THIS SYSTEM'S DESIGN WOULD IMPROVE PEDESTRIAN RETAIL SALES IN THE CENTRAL AREA. GREATER IMPETUS WOULD ALSO BE GIVEN TO MODERNIZATION OF EXISTING STRUCTURES ADJACENT TO THE FACILITY. OVERALL THE SYSTEM WOULD NOT SIGNIFICANTLY CHANGE THE STATUS QUO SITUATION.
6. REPLACE LOOP WITH RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	●	●	●	◕	THIS ALTERNATIVE WOULD PRODUCE THE MAXIMUM DEVELOPMENT IMPACT ON THE CENTRAL AREA OF CHICAGO. OVERALL THIS ALTERNATIVE WOULD ALLOW THE CENTRAL AREA TO REALIZE ITS FULL SERVICE POTENTIAL AS THE REGION'S CENTRAL ACTIVITY CENTER.
7. REPLACE LOOP WITH WACKER DRIVE GRANT PARK SUBWAY WITH DISTRIBUTOR	◕	◕	◕	●	●	THE LOCATION OF THE SUBWAY ELEMENTS OF THIS ALTERNATIVE WOULD NOT CREATE AS MANY PRIME OFFICE LOCATIONS AS ALTERNATIVE 6 AND 8. DUE TO THIS FACT, THE OVERALL URBAN DEVELOPMENT IMPACT WOULD BE 75-80% OF THESE TWO ALTERNATIVES
8. REPLACE LOOP WITH MODIFIED RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	●	●	●	◕	THE TOTAL URBAN DEVELOPMENT IMPACT OF THEIR ALTERNATIVE WOULD ESSENTIALLY BE THE SAME AS ALTERNATIVE 6 GREATER FOCUS, WOULD HOWEVER BE GIVEN TO COMMERCIAL DEVELOPMENT ALONG MICHIGAN AVENUE.
9. REPLACE LOOP WITH SUBWAY WITH N S LEG WEST OF RIVER	◒	◒	◒	◕	◕	THE DEVELOPMENT IMPACT OF THIS SYSTEM ALTERNATIVE WOULD BE COMPARABLE TO ALTERNATIVE 3 AND 5 ADDITIONAL LONG TERM IMPETUS WOULD BE GIVEN TO COMMERCIAL OFFICE AND RESIDENTIAL DEVELOPMENT WEST OF THE CHICAGO RIVER
10. REPLACE LOOP WITH SUBWAY AND ELIMINATE DISTRIBUTOR	◕	◕	◕	◕	◕	THE LEVEL OF URBAN DEVELOPMENT GAINS ATTRIBUTABLE TO THIS ALTERNATIVE WOULD ONLY BE 80% AS GREAT AS ALTERNATIVES
11. REPLACE LOOP WITH SUBWAY WITH EAST LEG AND DISTRIBUTOR ON MICHIGAN AVE	●	●	●	●	◕	SAME AS ALTERNATIVE 5
12. REPLACE LOOP WITH NEW ELEV STRUCTURE & E W DISTR W/SUBWAY ADDED ON CLINTON	◒	◒	◒	◕	◒	SAME AS ALTERNATIVES 6 AND 8

ALTERNATIVE EVALUATION CRITERIA

LEGEND

SHADING INDICATES CONTRIBUTION OF ALTERNATIVE TO ATTAINMENT OF INDICATED GOALS AND OBJECTIVES.

○ MINIMUM CONTRIBUTION

● MAXIMUM CONTRIBUTION

ALTERNATIVE CONSIDERED	SUMMARY							COMMENTS
	SERVICE	OPERATIONS	COST	ENVIRONMENT	URBAN/ ARCHITECTURE DESIGN	SOCIAL FACTOR	ECONOMIC FACTOR	
1. DO NOTHING	◔	○	●	◔	◔	○	◔	
2. UPGRADE EXISTING ELEVATED STRUCTURE	◔	◔	◕	◔	◔	○	◔	
3. ELIMINATE LOOP BUILD EAST WEST DISTRIBUTOR	○	◔	◒	○	◔	◔	◒	
4. ELIMINATE LOOP BUILD E W DISTRIBUTOR AND N S ROUTE	◒	◒	◔	◒	◒	◒	◕	
5. REPLACE LOOP WITH NEW ELEV STRUCTURE	◕	◕	◒	◕	●	◒	◒	
6. REPLACE LOOP WITH RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	◕	◔	●	◕	●	●	
7. REPLACE LOOP WITH WACKER DRIVE GRANT PARK SUBWAY WITH DISTRIBUTOR	◒	◕	○	◕	◕	◕	◕	
8. REPLACE LOOP WITH MODIFIED RECOMMENDED SUBWAY LOOP AND DISTRIBUTOR	●	●	◔	●	◕	◕	●	
9. REPLACE LOOP WITH SUBWAY WITH N S LEG WEST OF RIVER	◒	◒	◒	◒	◔	◕	◒	
10. REPLACE LOOP WITH SUBWAY AND ELIMINATE DISTRIBUTOR	◕	◕	◒	◕	◕	◒	◕	
11. REPLACE LOOP WITH SUBWAY WITH EAST LEG AND DISTRIBUTOR ON MICHIGAN AVE	●	●	○	●	◕	◕	●	
12. REPLACE LOOP WITH NEW ELEV STRUCTURE & E W DISTR W/SUBWAY ADDED ON CLINTON	◕	◕	◒	◕	●	◒	◒	

APPENDIX 5

TRANSIT QUESTIONNAIRE

TRANSIT QUESTIONNAIRE

This questionnaire has been devised to learn what types of social services Chicago area residents utilize in the downtown area and their mode of transit to these services.

We appreciate your cooperation in completing the questionnaire. Any additional comments will be welcomed.

1. Please indicate the part of the metropolitan area in which you reside:
   1. North Michigan ____
   2. North Clark ____
   3. Cabrini-Green ____
   4. West Madison ____
   5. Taylor Street ____
   6. South of Circle Campus ____
   7. Pilsen ____
   8. Chinatown ____
   9. Near South Side ____
   10. Loop ____

2. Do you possess a valid driver's license? 1. Yes ____ 2. No ____

3. Do you have an auto available for your personal transit? 1. Yes ____ 2. No ____

4. Do you currently use the downtown for the following types of services?
   1. Yes ____ 2. No ____

   If yes, please indicate which ones:
   1. Medical ____
   2. Dental ____
   3. Legal ____
   4. Educational ____
   5. Banking ____
   6. Employment ____
   7. Shopping ____
   8. Entertainment ____
   9. Cultural ____
   10. Other ____

5. How do you usually enter the downtown?
   1. Private auto ____
   2. Bus ____
   3. CTA train ____
   4. Commuter train ____
   5. Taxi ____
   6. Walk ____
   7. Other ____

6. If you use public transit, do you use the downtown area as a transfer point to services located in other parts of the City?
   1. Yes ____ 2. No ____

7. Are there changes you wish for your community?
   1. Yes ____ 2. No ____

   If yes, in what area?
   1. employment ____
   2. security & safety ____
   3. medical services ____
   4. transit lines ____
   5. education ____
   6. housing ____
   7. recreation ____
   8. other ____

8. Age:
   1. 0-16 ____
   2. 17-24 ____
   3. 25-34 ____
   4. 35-49 ____
   5. 50-64 ____
   6. 65 and over ____

9. Sex 1. Male ____ 2. Female ____

10. Yearly income:
    1. Less than $2,000 ____
    2. $2,001 - $5,000 ____
    3. $4,001 - $7,000 ____
    4. $7,001 - $10,000 ____
    5. $10,001 - $15,000 ____
    6. More than $15,000 ____

11. Additional comments:

W. V. ROUSE ASSOCIATES, LTD.
CHICAGO URBAN TRANSPORTATION DISTRICT

Thank you for your cooperation.

BOUND BY
HNM

UNIVERSITY OF ILLINOIS-URBANA
3 0112 122604215